



Preliminary Engineering Report

This preliminary engineering report contains detailed engineering information that fulfills the purpose and need for the project of SR 87 Connector PD&E Study from US 90 to SR 87N in Milton.

Santa Rosa County Florida

Financial Project No.'s:

416748-3-22-01, 416748-3-22-02,
416748-4-22-01, 416748-4-22-02,
and 416748-4-22-90

ETDM No.: 12597

Federal Aid Project No.:

SF1 296 R, S129 348 R,
TCSP 033 U, T129 348 R

October 2015

Prepared For:

Florida Department of Transportation
District Three
Chipley, FL

Prepared by:

Metric Engineering, Inc.
2616 Jenks Avenue
Panama City, Florida 32405
Phone: 850.872.8044
Fax: 850.872.8704



PRELIMINARY ENGINEERING REPORT

Florida Department of Transportation, District Three

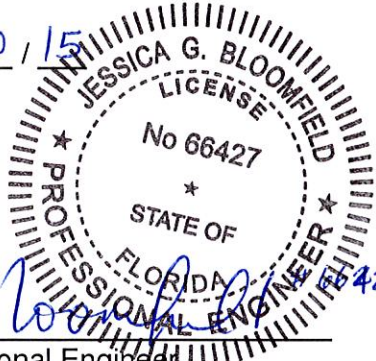
ETDM Number: **12597**

Financial Management Numbers: **416748-3-22-01, 416748-3-22-02, 416748-4-22-01, 416748-4-22-02, and 416748-4-22-90**

Federal-Aid Project Number: **SF1 296 R, S129 348 R, TCSP 033 U, T129 348 R**

This preliminary engineering report contains detailed engineering information that fulfills the purpose and need for project of the SR 87 Connector PD&E Study from US 90 to SR 87N in Santa Rosa County, FL.

Date 11 / 20 / 15

The seal is circular with a dashed outer border. Inside, the text "JESSICA G. BLOOMFIELD" is at the top, "LICENSE" is below it, "No 66427" is in the center, and "STATE OF FLORIDA" is at the bottom. The words "PROFESSIONAL ENGINEER" are written along the inner curve of the seal.

J. Bloomfield
Professional Engineer

Table of Contents

APPENDICES	III
1. EXECUTIVE SUMMARY	1.1
1.1 RECOMMENDATIONS	1.4
1.2 COMMITMENTS	1.5
2. INTRODUCTION.....	2.1
2.1 PROJECT DESCRIPTION	2.1
2.2 PURPOSE AND NEED	2.1
2.2.1 <i>Emergency Evacuation</i>	2.1
2.2.2 <i>Multi-modalism</i>	2.3
2.2.3 <i>Social Demand and Economic Development</i>	2.3
2.2.4 <i>Future Growth</i>	2.3
2.2.5 <i>Traffic Data</i>	2.3
2.2.6 <i>Safety/Crash Rates</i>	2.4
2.2.7 <i>Plan Consistency</i>	2.4
2.3 RELATED PROJECTS IN THE VICINITY	2.5
3. EXISTING CONDITIONS	3.1
3.1 ROADWAY CHARACTERISTICS OF EXISTING ROADWAYS.....	3.3
3.1.1 <i>Bicycle and Pedestrian Facilities</i>	3.3
3.1.2 <i>Typical Sections</i>	3.3
3.1.3 <i>Existing Traffic Conditions</i>	3.5
3.1.4 <i>Transit</i>	3.8
3.2 SOCIAL AND ENVIRONMENTAL CHARACTERISTICS.....	3.8
3.2.1 <i>Land Use</i>	3.8
3.2.2 <i>Wetlands</i>	3.11
3.2.3 <i>Wildlife and Critical Habitat</i>	3.11
3.2.4 <i>Special Designation</i>	3.11
3.2.5 <i>Cultural Features and Community Services</i>	3.12
3.3 DRAINAGE	3.13
3.3.1 <i>Floodplains</i>	3.13
3.4 SOILS	3.13
3.5 UTILITIES.....	3.14
4. DESIGN CONTROL AND STANDARDS	4.1
4.1 ROADWAY GEOMETRIC DESIGN	4.1
4.2 DRAINAGE DESIGN CRITERIA	4.2
5. ALTERNATIVES CONSIDERED	5.1
5.1 PHASE ONE: CONCEPTUAL DESIGN ANALYSIS	5.1
5.1.1 <i>No Build Alternative</i>	5.1
5.1.2 <i>Transportation Systems Management (TSM) Alternatives</i>	5.1
5.1.3 <i>Build Alternatives</i>	5.3
5.2 PHASE TWO: PRELIMINARY ALTERNATIVE EVALUATION	5.7
5.3 PHASE THREE: FINAL ALTERNATIVE EVALUATION	5.9

6.	RECOMMENDED ALTERNATIVE	6.1
6.1	DESIGN EXCEPTIONS/VARIANCES	6.1
6.2	HORIZONTAL ALIGNMENT	6.1
6.3	PROPOSED TYPICAL SECTIONS	6.1
6.4	ACCESS MANAGEMENT	6.5
6.5	UTILITIES AND RAILROAD	6.6
6.6	DRAINAGE	6.6
6.6.1	<i>Floodplain Encroachment</i>	<i>6.8</i>
6.6.2	<i>Proposed Ponds</i>	<i>6.9</i>
6.6.3	<i>Required Permits</i>	<i>6.10</i>
6.7	TRAFFIC ANALYSIS.....	6.10
6.7.1	<i>Design Traffic Volume</i>	<i>6.10</i>
6.7.2	<i>Intersection Analysis</i>	<i>6.11</i>
6.8	STRUCTURES	6.11
6.9	CONSTRUCTION COST ESTIMATE.....	6.13
6.10	RELOCATION PLAN.....	6.13
6.11	RIGHT-OF-WAY COST ESTIMATE	6.14
6.12	VALUE ENGINEERING.....	6.14
6.13	CONTEXT SENSITIVE SOLUTIONS	6.16
6.13.1	<i>Pedestrians and Bicycle Facilities</i>	<i>6.16</i>
6.13.2	<i>Effective Public Involvement</i>	<i>6.16</i>
6.13.3	<i>Environmental Considerations</i>	<i>6.17</i>
6.14	ENVIRONMENTAL IMPACTS	6.17
6.14.1	<i>Historical and Archaeological Resources</i>	<i>6.17</i>
6.14.2	<i>Wetlands</i>	<i>6.18</i>
6.14.3	<i>Biological Impacts</i>	<i>6.18</i>
6.14.4	<i>Contamination</i>	<i>6.18</i>
6.14.5	<i>Noise</i>	<i>6.19</i>
6.14.6	<i>Air Quality</i>	<i>6.19</i>
6.14.7	<i>Land Use.....</i>	<i>6.19</i>
6.14.8	<i>Recreation and Parkland.....</i>	<i>6.20</i>
6.14.9	<i>Coastal Zone Consistency</i>	<i>6.20</i>
6.14.10	<i>Water Quality</i>	<i>6.20</i>
7.	CONCEPTUAL DESIGN PLANS	7.1
8.	LIST OF TECHNICAL REPORTS COMPLETED FOR THE PROJECT	8.1

List of Figures

Figure 1: Project Study Area	2.2
Figure 2: Project Considerations.....	3.2
Figure 3: Existing Roadway Characteristics	3.4
Figure 4: Existing Typical Section (SR 87S and SR 87N)	3.5
Figure 5: Existing AADT and 2009 Daily LOS	3.7
Figure 6: Environmental Features	3.9
Figure 7: Existing Land Use.....	3.10

Figure 8: Alternative Selection Process	5.2
Figure 9: Alternative Corridors	5.4
Figure 10: Preliminary Corridor Evaluation	5.6
Figure 11: AHP Results	5.10
Figure 12: Sensitivity Analysis.....	5.12
Figure 13: Recommended Alternative	6.2
Figure 14: Proposed Interim Urban Typical Section	6.3
Figure 15: Proposed Interim Rural Typical Section	6.3
Figure 16: Proposed Urban Typical Section	6.4
Figure 17: Proposed Rural Typical Section.....	6.4
Figure 18: Clear Creek Bridge Typical Section	6.12
Figure 19: Blackwater River Bridge Typical Section	6.12

Appendices

- A. Efficient Transportation Decision Making (ETDM) Summary Report
- B. Plan Consistency Documentation
- C. FEMA Flood Insurance Rate Maps (FIRM)
- D. Corridor Alternatives Evaluation Report
- E. Alternatives Evaluation
- F. Typical Section Package
- G. Coordination Letters
- H. 2012 Long Range Estimate (LRE)
- I. Right-of-Way Cost Estimate
- J. Public Involvement Information
- K. Value Engineering Report

1. EXECUTIVE SUMMARY

This preliminary engineering report contains detailed engineering information that fulfills the purpose and need for SR 87 Project Development & Environment (PD&E) study.

The State of Florida Department of Transportation (FDOT) is conducting a study to evaluate potential options to provide a new roadway facility that will directly link SR 87S with SR 87N in the vicinity of the City of Milton in Santa Rosa County, Florida. The current connection between SR 87S and SR 87N is rather indirect and partly involves a shared facility of SR 87 and US 90 (see Figure at right). The proposed project is in the PD&E Study phase in which preliminary engineering is accomplished.



The primary objective of the project is to facilitate north/south traffic flow that would provide for a more direct hurricane evacuation route from the NW Florida coastal areas to areas north in Alabama. In addition, the project will reduce traffic congestion within the City of Milton and alleviate travel demand on the section of US 90 currently shared with SR 87. The proposed improvements include the provision of a new divided four lane, semi-controlled access facility from the US 90/SR 87S intersection to just north of the divergence of SR 87N and SR 89. It should be noted, however; that the new SR 87 Connector is proposed to be built in two separate phases. The SR 87 Connector will initially feature an interim two lane facility with a multi-use path and as demand increases, the road would be expanded to four lanes if needed to ultimately match the four lane sections at the existing SR 87S and SR 87N facilities. It should be noted that all right-of-way required for the ultimate four lane facility will be acquired during the first phase of construction.

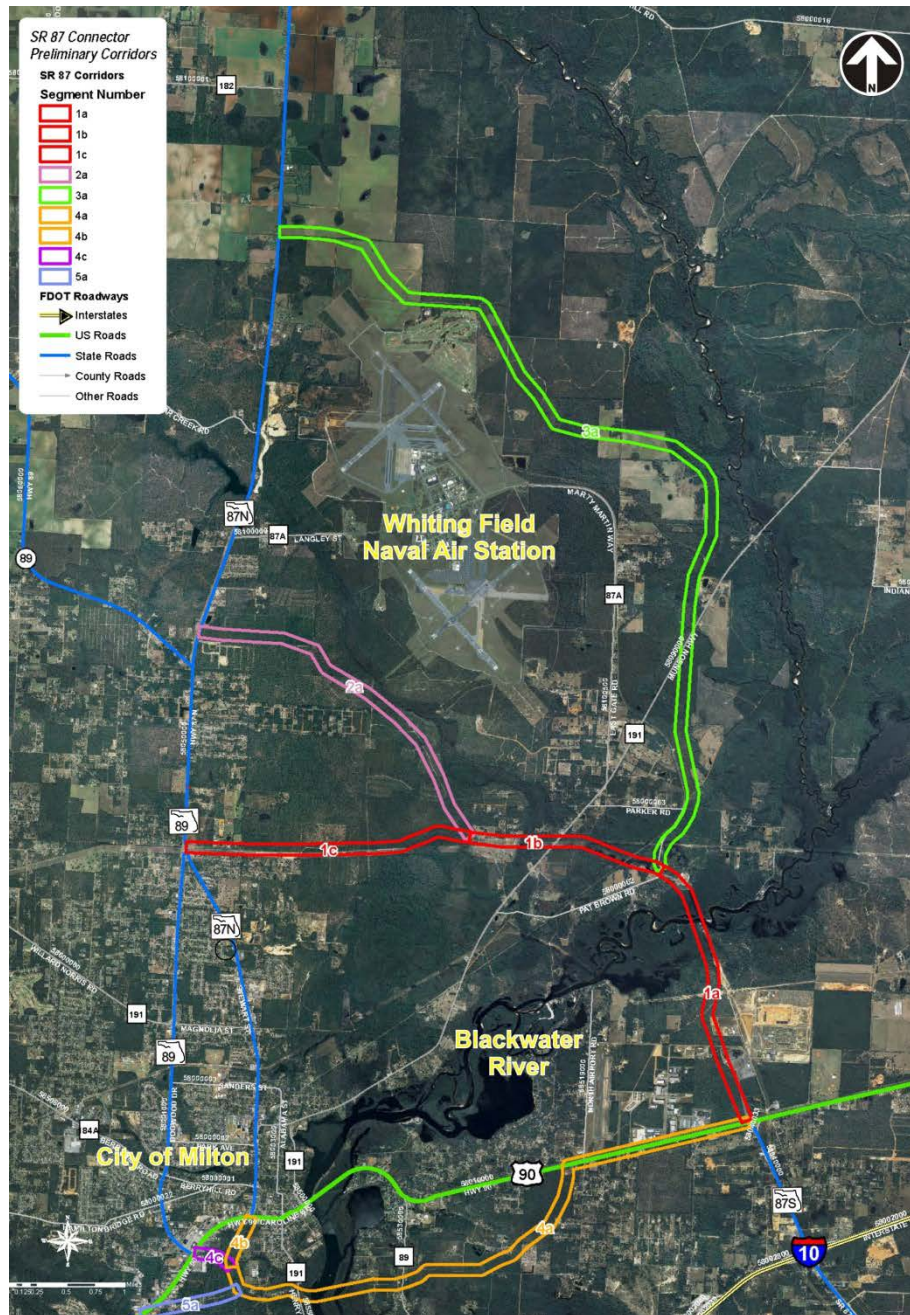
In summary, the objective of this PD&E study is to improve the existing connectivity of the SR 87 facility by developing solutions to existing project deficiencies and anticipated future substandard conditions. Existing deficiencies in the study area are expected to further degrade, requiring the implementation of improvements in critical areas.

In terms of the project genesis, it should be noted that this project has been reviewed and studied for many years under a variety of names. The Florida Alabama Strategic Task Force (FAST) previously considered it under the name “Brewton to the Beaches” while Santa Rosa County includes it in the “Better Santa Rosa Plan”. Team Santa Rosa includes it as part of their future

EXECUTIVE SUMMARY

planning. In addition, the Corridor Authority, Santa Rosa County and the Florida-Alabama Transportation Planning Organization included it as the eastern leg of the overall Beltway Project that was once planned to span both Escambia and Santa Rosa Counties in their Long Range Plans and Cost Feasible Projects. In addition, the Beltway Project was also studied by the Turnpike Enterprise.

An Environmental Technical Advisory Team (ETAT) review was conducted in 2008 under Efficient Transportation Decision Making (ETDM) project #2861, however that effort only considered new improvements for the segment extending from SR 87S/US 90 to Munson Highway. It was the intent at the time that this segment be the first phase of a corridor that would be eventually extended to SR 87N. A “SR 87 Connector PD&E Study” was submitted on December 2009 for ETDM review as project #12597. As shown on the figure to the right, a total of six distinct corridors were originally considered (see Section 5 for details). The results of the corridor evaluation resulted in the elimination of four of the original six corridors generally due to fatal flaws as a result of major environmental impacts. The remaining two corridor options (Alternatives 1 and 2) were further refined as part of the present effort and documented in this report.



The present study started with a detailed, comprehensive analysis of the existing characteristics of the project study area and the existing facility. The following is a summary of the existing



EXECUTIVE SUMMARY

deficiencies within the study area. The need for improvement was established based on these findings:

- SR 87 serves as a critical evacuation route during hurricanes and other civil emergencies. Since a portion of the current alignment traverses a congested and physically constrained portion of US 90 through historic downtown Milton, it cannot function as an effective route.
- There is a need for greater bicycle and sidewalk connectivity within the County with possible connections with the Blackwater Heritage State Trail and to the old SR 1 Historic Trail.
- The need of the project is also related to the future development in the northern portions of Santa Rosa County as well as the future development in the US 90 corridor, which is hindered by the existing capacity limits of US 90. As reported by the Santa Rosa County Land Use Office, Santa Rosa County has grown 173% since 1980 and is expected to grow another 92% by 2030. This growth will increase traffic demand on the US 90/SR 87 segment, further limiting effective evacuation efforts due to lack of roadway capacity.
- There is also the need to provide more direct access from Whiting Aviation Park to I-10. This industrial park including a 6,000 foot runway under a joint use agreement with the Naval Base.
- A segmental crash analysis conducted along the present study corridor from 2004-2009 is illustrated on **Table 1.1**. Clearly, a significant number of crashes representing an average annual economic cost of \$13,087,400 have occurred. Please note that most of the crashes have occurred at or near the US 90 intersections with SR 87S and SR 87N.

Table 1.1 Cost of Crashes Per Year

Location	Fatal	Injury	PDO	Total
SR 87S	\$0	\$115,400	\$1,680,200	\$1,795,600
US 90	\$3,569,000	\$365,200	\$4,398,000	\$8,332,200
SR 87N	\$0	\$291,100	\$2,668,500	\$2,959,600
Total	\$3,569,000	\$771,700	\$8,746,700	\$13,087,400

* Based on: (Fatality \$2,600,000; Injury \$36,000; PDO \$2,000) Source: FHWA Tech Advisory T7570.2 (1994) updated to 2009 using GDP Price Deflator.

- A detailed traffic analysis was performed to document existing traffic conditions as well as to establish projected design year (2035) traffic requirements. The existing conditions analysis indicates that segments of US 90 are operating at a failing level of service (2010) and will continue to deteriorate if no improvements are provided.

Based on the analysis of existing deficiencies, a series of alternatives were evaluated in this study. As previously stated, a total of six corridors were originally considered and four of the six options were eliminated due to fatal flaws as a result of major environmental impacts. The environmental impacts discovered were due to the corridors traversing land that had been, or are currently being, purchased by state agencies using Florida Forever Funds. A comprehensive alternative selection process was utilized in order to assess all remaining project alternatives. Project alternatives considered corridor options that generally extended north of the existing US 90/SR 87S intersection crossing the Blackwater River and running parallel or adjacent to a major power easement. Alternative 1 connects with SR 87N in the proximity of the southern split of SR 87N and SR 89 while Alternative 2 would run adjacent to the Clear Creek environmental lands and



EXECUTIVE SUMMARY

turns west to connect with SR 87N in the proximity of the northern split of SR 87N and SR 89. The alternatives emphasized engineering, environmental and economic aspects while adhering to sound aesthetic design principles. Other components considered as part of the alternative selection included cost, community impacts and traffic service.

The Public Hearing for the SR 87 Connector PD&E was held November 13, 2014. Comments from the hearing about the proximity of Alternative 2 to homes on the west side of SR 87N, as well as to homes in the newly developed Harvest Point Subdivision, prompted the study team to reevaluate the intersection location of Alternative 2 and SR 87N. After reviewing the public information summary of the public hearing, the study team adjusted Alternative 2 slightly north to a previously reviewed alignment.

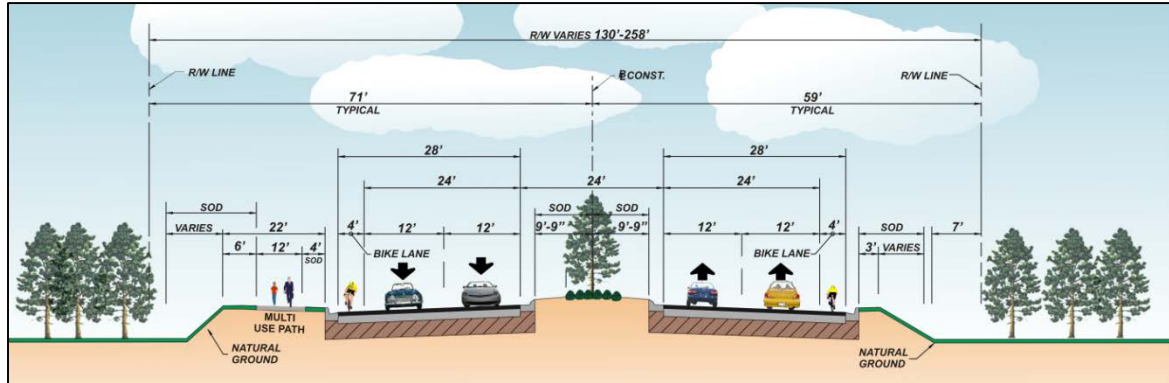
1.1 Recommendations

The results of the alternative selection process indicate that Alternative 2 is the alternative recommended for location design and concept acceptance (LDCA) mainly due to less environmental impacts. Alternative 2 consists of constructing the SR 87 Connector from the US 90/SR 87S intersection crossing the Blackwater River in the proximity of the existing eastern power easement crossings. Once across the river, it runs parallel or adjacent to the power easement, then veers north adjacent to Clear Creek and finally connects with SR 87N just north of the divergence of SR 87N and SR 89 for a total length of approximately 8.2 miles.

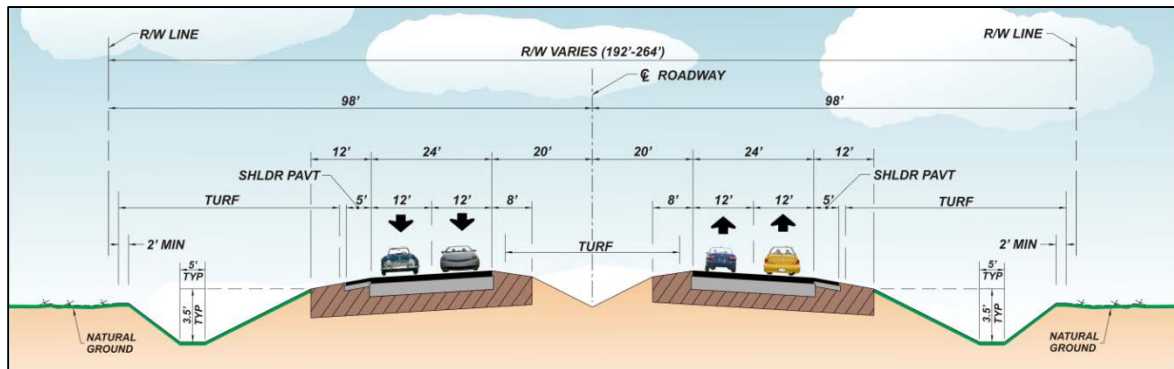
Alternative 2 is proposed as a four lane, restricted access, divided highway with two sets of twin two lane bridges over the Blackwater River and over the Blackwater Heritage State Trail, east of Milton and over Clear Creek, south of the Whiting Field Naval Air Station. The proposed roadway will also provide a 12 foot multi-use path on the west/south sides of the roadway to the Blackwater River State Trail. It is the intent for the project to initially build an interim two lane facility and as demand increases, the road would be expanded to four lanes to ultimately match the urban four lane section at the existing SR 87S and SR 87N. As the connector enters into less constrained areas north of the Blackwater River, a rural typical section is being recommended. Analysis of future traffic conditions indicated that Alternative 2 will divert traffic from US 90 and reduce the number of failing segments along US 90 to two (2) segments in 2015, five (5) segments in 2025 and three (3) segments in 2035. All other road segments will operate at acceptable LOS. The figure below and the one on the next page depict the proposed typical sections.

The following typical sections indicate four foot bicycle lanes in the urban areas. However, during the final processing of the environmental document, new criteria for bicycle lanes was adopted. This new criteria will be analyzed during the reevaluation phase of this project and subsequently incorporated into the design phase.

EXECUTIVE SUMMARY



Proposed Urban Typical Section



Proposed Rural Typical Section

Project cost estimated associated with the proposed improvements are as follows:

Alternative <u>Improvements</u>	Construction <u>Cost Estimate</u>	Right-of-Way <u>Cost Estimate</u>
Alternative 1	\$116,781,000	\$5,058,000
Alternative 2	\$120,410,000	\$5,626,000

1.2 Commitments

- The Blackwater River will be bridged and construction will be conducted during nonspawning periods to avoid direct impacts to both Gulf sturgeon critical habitat and individuals.
- All construction methods will be consistent with the “Construction Special Provisions – Sturgeon Protection Guidelines” to minimize construction related impacts.
- The pond areas within the Reticulated Flatwoods Salamander (RFS) critical habitat unit will be bridged to reduce direct impacts to both the critical habitat unit and individuals.

EXECUTIVE SUMMARY

- Indirect impacts to the RFS habitat will be minimized through the location and placement of stormwater treatment from elevated roadways so that the treatment areas do not impact the critical habitat unit.
- Eastern indigo snake protective measures will be followed during construction to avoid impacts.
- Manatee protective measures will be followed during construction to avoid impacts.
- Prior to construction, a survey for the gopher tortoise will be conducted. If individuals are present within the project impact area, appropriate permits will be obtained for the relocation of the tortoises.
- A site-specific survey will be conducted to determine the presence or absence of bald eagle nests in or near the construction zone.
- Any unused ROW purchased for future expansion will be left in its natural, generally un-impacted state until such time as it is needed for the proposed expansion to 4 lanes.
- All commitments made as terms and conditions of the Biological Opinion will be fulfilled:
 - The FDOT will provide an information package at the Pre-Construction Conference to educate the Contractor on the subject of the listed species, the laws protecting such species, and the civil and criminal penalties for harming, harassing, or killing such species.
 - The Contractor will consider and implement where practical innovative, environmentally sensitive construction techniques to avoid/minimize impacts to listed species and sensitive areas.
 - The Erosion Control Plan/Stormwater Pollution Prevention Plan (SPPP) will be provided to the USFWS for comment prior to the start of work. Substantive changes to the SPPP during construction will also be reported to the USFWS.
 - The Erosion Control Plan/SPPP will be strictly adhered to, including the installation and maintenance of structures. Temporary erosion control devices will be installed prior to clearing and grubbing activities. Other measures in the plan will include:
 - All turbidity barriers placed in the river will be consistent with the Gulf Sturgeon Protection Guidelines.
 - Stockpiled materials will be placed in a manner to prevent rain runoff from washing materials into the river.
 - The Erosion Control Plan will include redundant measures for the width of the ROW along the Blackwater River and along the limits of construction within the flatwoods salamander critical habitat unit to provide a second line of defense should one layer of protection be breached. An example would be a double row of silt fencing.
 - The Erosion Control Plan will include daily monitoring of erosion control devices that protect the waters of the Blackwater River and the flatwoods salamander critical habitat unit.
 - Soil disturbing activities (clearing, pile driving) within the potential breeding pond (Pond 2) of the flatwoods salamander critical habitat unit will be avoided to the extent practicable during periods when eggs/larvae may be present (October through April). Additional coordination will occur during the Design phase to address this issue.



EXECUTIVE SUMMARY

- In the event of erosion control failure with impacts to the Blackwater River, the Contractor will notify the FDOT, FHWA, and USFWS to determine: (1) whether incidental take was exceeded, (2) if additional protection measures are needed to avoid future impacts to listed species from sedimentation, and (3) if stream restoration is needed. The USFWS will be available to assist the FDOT with development of a stream restoration plan should it become necessary.
- Survey the baseline stream geomorphology 400 m downstream of the extent of construction through methods including a longitudinal profile and stream channel cross sections. Coordinate the survey plan with the USFWS prior to implementation.
- Stream turbidity will be monitored by the Project Administrator or his designee before construction in various places on the river (upstream, downstream, etc.) to establish a baseline. During construction and demolition, the Project Administrator will be responsible for monitoring turbidity levels daily for any earthwork activities near the Blackwater River to ensure that turbidity levels do not increase above the level allowed by the FDEP permit for an OFW. Construction activities found to be associated with the increased turbidity levels will not be allowed to resume until the turbidity levels return to that of ambient. All other construction activities having no effect on the deviant turbidity levels will be allowed to resume once the source has been identified.
- Boats and barges used in support of construction activities will be removed from the main channel during periods of inactivity.
- A post-construction field review will be conducted by FDOT and the USFWS to determine if the project has impacted the Blackwater River and if stream restoration is needed.
- No herbicides or pesticides will be used within the flatwoods salamander Critical Habitat Unit RFS-2, Subunit A during construction and post-construction for FDOT maintenance activities.
- The hydrology and native vegetation of the potential breeding pond (Pond 2) within the FDOT ROW will be maintained to the extent practicable. The pond's plant community and hydrology will be monitored for 5 years to better assess the long term adverse effects of the bridge. A monitoring plan will be developed and coordinated with the USFWS prior to construction. Annual monitoring reports will be provided to the Fish and Wildlife Service's Field Office in Panama City, Florida
- Upon locating a dead, injured, or sick individual of an endangered or threatened species, FDOT will notify the Fish and Wildlife Service Law Enforcement Office, Groveland, Florida at (352) 429-1037 within 24 hours, and the Fish and Wildlife Service's Field Office at Panama City, Florida at (850) 769-0552 within 48 hours. Care should be taken in handling sick or injured individuals and in the preservation of specimens in the best possible state for later analysis of cause of death or injury.
- A report describing the actions taken to implement the terms and conditions of this incidental take statement shall be submitted to the Project Leader, U.S. Fish and Wildlife Service, 1601 Balboa Avenue, Panama City, Florida,

EXECUTIVE SUMMARY

32405, within 60 days of the completion of construction. This report shall include the dates of work, assessment and actions taken to address impacts to the Gulf sturgeon and flatwoods salamander, if they occurred.

- Environmentally sensitive areas will be identified and flagged.
- In the location of the bridge, clearing and grubbing will be limited to cutting vegetation to the ground surface. Root raking will only be used in areas where piling cap supports are anticipated, which will minimize impacts to the floodplain wetlands that support the Blackwater River and the RFS critical habitat unit.
- Embankment and excavation will not be employed within the Gulf sturgeon critical habitat or the RFS critical habitat since both areas will be bridged.
- Where embankments are constructed, only clean fill will be used that does not contain any muck, vegetation, stumps, roots, brush, rubbish, or reinforced bar. If dewatering is required, all water will be pumped to upland areas on the edge of the ROW that will be contained with silt fencing. Water will be allowed to percolate through in these upland areas to prevent sediment runoff from entering adjacent wetlands. Once the embankments are completed, they will be compacted and stabilized prior to paving and surfacing operations.
- Excavated material will be stockpiled in designated upland areas that will be enclosed with silt fencing and hay bales. The stockpile areas will be inspected regularly and will be kept moist to reduce observed windblown particulates.
- Construction mats will be used within wetland areas to minimize soil disturbances and rutting, and to maintain existing micro-topography and water levels.
- FDOT will ensure that all staging areas are within uplands and are contained with erosion control measures. Construction staging areas will be located outside of the Blackwater River floodplain.
- Best Management Practices (BMPs) specific to Outstanding Florida Waters (OFW) will be implemented during construction and stormwater design to prevent degradation of the Blackwater River.
- Ponds with discharges into wetland areas associated with the Blackwater River will treat water to OFW standards. The remainder of the stormwater ponds will meet the state requirements under the Environmental Resource Permit (ERP).
- In-river pile driving will be avoided during May and June to minimize potential direct harm to Gulf sturgeon during the peak period when fish may be present in the river near the project location.
- Pile bents will be used instead of columns on piling caps to reduce direct impacts to river bottom and critical habitat.
- No dredging or use of explosives in or adjacent to the river will be done.
- Sturgeon migratory corridors will not be physically blocked or impeded.
- In order to minimize impacts to Gulf sturgeon that may be using the river at the time of construction, the contractor will “ramp-up” for piling installation by conducting several (up to five) soft hammer blows before commencing the harder hammer blows. The “ramp-up” is intended to alert fish that

EXECUTIVE SUMMARY

- construction is commencing and give them time to move away from the construction site.
- During in-river pile driving, erosion control measures will be installed around the limits of the work area and will be maintained until piling installation in each area is complete. Specifically:
 - The work area will be separated from the adjacent open water using floating turbidity barriers. The barriers will be installed around the limits of the work area and downstream of the work site prior to commencing work, and removed no more than 24 hours after work is completed.
 - The barriers located downstream of the worksite will be removed at the end of each work day and replaced prior to commencing work the following day. Barriers will not be removed before turbidity returns to background levels.
 - Dewatering should not be necessary.
 - FDOT will purchase, donate, or fund the purchase of up to four fish tag receptors for use in the Blackwater River system, in an amount not to exceed \$5,000. FDOT requests copies of the processed or raw data obtained from the receptors for use in future project efforts.
 - All stormwater will be collected from the completed bridge surface and conveyed to stormwater ponds located outside of the RFS critical habitat unit.
 - The ROW will be accessed for construction and maintenance from the maintained powerline easement.
 - FDOT will provide compensation for the loss of RFS habitat through a monetary contribution up to \$10,000 to a third party for activities that contribute to the conservation of the RFS. The work plan for these conservation activities will be coordinated with the USFWS and FDOT, and will be mutually agreed to as suitable for offsetting effects to RFS habitat.
 - Precautions will be taken during preventative maintenance tasks such as painting and cleaning to protect the Blackwater River and the RFS critical habitat. Preventative measures include conducting work from a maintenance traveler, platform, or over a suspended net or tarp to capture rust, paint, and paint removing agents and prevent discharge into the water or wetland below the bridge. If sanding is necessary, sanders with vacuum filter bags will be used. The water used for cleanup will be collected and disposed of to avoid impacts to the water or wetland below the bridge.
 - Mitigation for unavoidable wetland impacts will be accomplished in accordance with section 373.4137, F.S., which allows the FDOT to provide compensatory mitigation using mitigation banks and any other options that satisfy state and federal requirement. Mitigation will be finalized during Design/Permitting.
 - Proposed stormwater treatment pond(s) shall avoid direct discharge to Cooper Basin. Cooper Basin is located downstream from the proposed bridge crossing and is connected to the Blackwater River, an Outstanding Florida Water. Cooper Basin is a known breeding area for Gulf Sturgeon (*Acipenser oxyrinchus desotoi*).

2. INTRODUCTION

2.1 *Project Description*

The State of Florida Department of Transportation (FDOT) is conducting a study to evaluate potential options to provide a new roadway facility that will directly link SR 87S with SR 87N in the vicinity of the City of Milton in Santa Rosa County, Florida. The current connection between SR 87S and SR 87N is rather indirect and partly involves a shared facility of SR 87 and US 90 (see **Figure 1**). The proposed project is in the Project Development and Environment (PD&E) Study phase in which preliminary engineering is accomplished.

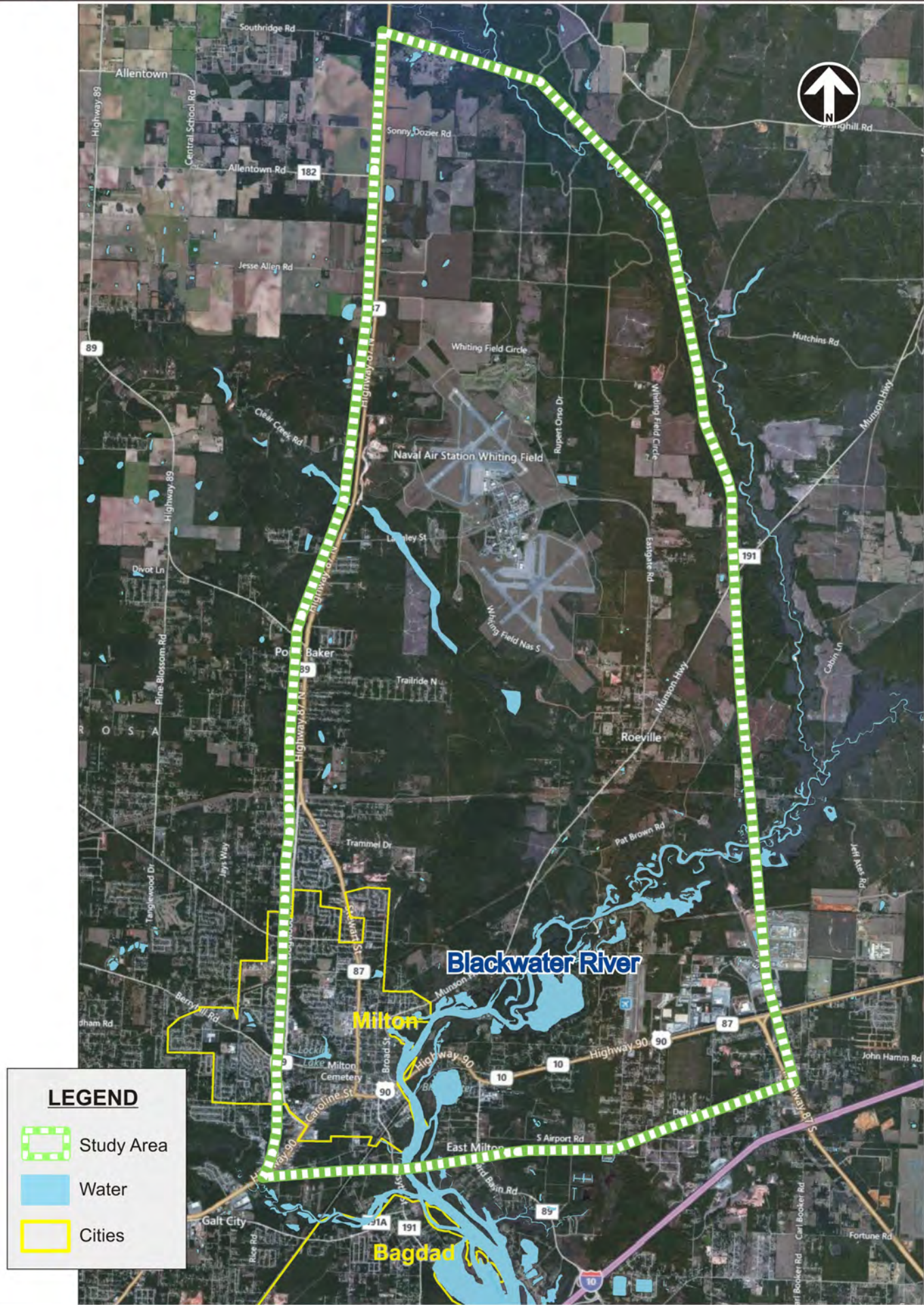
The primary objective of this SR 87 Connector project is to extend SR 87S to facilitate north/south traffic flow to more effectively serve freight movement and to provide for a more direct hurricane evacuation route from the coast to areas north in Alabama. Another objective is to reduce traffic congestion within the City of Milton, and to alleviate travel demand on the section of US 90 currently shared with SR 87. Versions of this project have gone through ETDM screening as ETDM Project #2861 in 2008. However, that project was much more limited in scope and only evaluated a corridor from SR 87S to Munson Highway. On December 19, 2009 the SR 87 Connector project was submitted for ETDM review as Project #12597 (See Appendix A).

2.2 *Purpose and Need*

This project is needed to provide for a new roadway facility linking SR 87S with SR 87N. This will serve as an alternative to the existing shared facility of SR 87 and US 90, which is a constrained facility that is currently operating at a failing level of service (LOS F). Therefore, the primary need for this new corridor is to provide additional capacity, and to improve regional connectivity by providing a more direct route from areas of high growth in northern Santa Rosa County, such as the Berryhill Road area, to I-10 and to areas further to the south. Likewise, access will be improved to and from I-10 for the Whiting Field U.S. Naval Air Station, and the County's Joint Use Planning Area near Whiting Field. It is also anticipated that this new roadway facility would provide relief to Ward Basin Road and its intersection with US 90 as well as the physically constrained US 90 bridge over the Blackwater River.

2.2.1 **Emergency Evacuation**

SR 87 serves as a vital evacuation route for northbound traffic destined for I-65 in Alabama. During times of hurricane force winds, both the Escambia Bay Bridge and the Garcon Point Bridge close leaving SR 87N to the interstate and beyond as the only access out of the beach areas like Gulf Breeze and Navarre, and is the only access into the area for Emergency First Responders. However, with a portion of the current alignment travelling along a congested portion of US 90, through historic downtown Milton, it cannot function as a contiguous roadway. The project will address future projected deficiencies on an established emergency hurricane evacuation route.



2.2.2 Multi-modalism

The project will also address the need for greater bicycle and sidewalk connectivity within the County with possible connections with the Blackwater Heritage State Trail, enabling area resident's direct access. Santa Rosa County recently started operating a public transit system. At the beginning of the study, bus routes (eastbound route and westbound route) generally operated along US 90 from SR 87S to south of Woodbine Road between the cities of Pensacola and Milton. However, due to the lack of funding, this service has been cancelled. The area is looking to resume the bus routes in 2016.

2.2.3 Social Demand and Economic Development

Santa Rosa County is not only a bedroom community to the greater Pensacola area, but in its own right, has also been experiencing considerable population growth. This growth has spurred the need for an improved roadway network. In addition, major traffic generators in the area such as new residential developments, the Santa Rosa Criminal Justice Center, the Santa Rosa Corrections Facility, the Whiting Field U.S. Naval Air Station, the Team Rosa Joint Planning area near Whiting Field, and the Santa Rosa Commerce Park on the US 90 corridor, would all benefit from the additional capacity this facility will provide. The need for the project is also related to committed trips associated with future development in the northern portions of Santa Rosa County, as well as, the future development on the US 90 corridor, which is hindered by the existing capacity limits.

2.2.4 Future Growth

As reported by the US Census Bureau 2010 Report, Santa Rosa County continues to be among the fastest growing counties in Florida. The county population has grown 150% (from just under 60,000 to over 150,000 people) from 1980 to 2010. According to the University of Florida's Bureau of Economic and Business Research (BEBR) Report and the FL-AL Transportation Planning Organization's (TPO) 2035 Long Range Transportation Plan (LRTP), the population is expected to grow another 45% to nearly 220,000 people by 2035. This population growth will put further demand on the US 90/SR 87 segment, making growth and evacuation difficult due to a lack of roadway capacity.

In Traffic Analysis Zones adjacent to the corridor, population is anticipated to grow by 2,648 from 2,029 to 4,677, or 131 percent, between 1997 and 2020. Employment is projected to increase by 575 from 908 to 1,483, or 63 percent. The number of dwelling units is forecasted to rise by 1,114 from 827 to 1,941, or 135 percent. This projected growth is based on the 2035 Cost Feasible Transportation Model that was adopted in 2011 and accounts for the economic downturns of the past 3 years.

2.2.5 Traffic Data

According to the Santa Rosa County Comprehensive Plan, the current adopted Level of Service (LOS) standard for US 90 is D. In 2008, US 90 from Ward Basin Road to SR 87N had a failing level of service. Without the proposed improvement, the operating conditions will continue to deteriorate. The Raw Model Volume for the FL-

INTRODUCTION

AL TPO 2020 Needs Plan for this new segment was 9,472 vehicles per day (vpd). This would provide much needed relief to US 90. In a more recent modeling analysis done in the SR 87 Connector PD&E Preliminary Traffic Report, dated September 2010, the volumes for the new segment are approximately 14,500 vpd. Traffic analysis is based on the adopted 2035 Northwest Florida Regional Planning Model (NWRPM) Cost Feasible Model.

2.2.6 Safety/Crash Rates

Table 2.1 contains crash data from the period of 2004 thru 2009 according to Florida Department of Transportation crash data base.

Table 2.1

Segment	PDO	Injury	Fatality	Total
SR 87S from I-10 to US 90	39	47	0	86
US 90 from SR 87S and SR 87N	89	144	1	234
SR 87N from US 90 to Southridge Rd.	53	113	0	166

The majority of the crashes on SR 87S from I-10 to US 90 occurred at the US 90/SR 87S intersection. The crashes along US 90, from SR 87S to SR 87N were generally distributed throughout the segment. There was, however, a slightly higher concentration of crashes at the US 90/SR 87N intersection. The single fatality in the segment occurred at milepost 13.847 just east of Ward Basin Road. The crashes along SR 87N from US 90 to Southridge Road were generally distributed throughout the segment.

The SR 87 Connector will provide a new roadway to connect SR 87S and SR 87N. Presently, the SR 87 corridor follows along US 90, a congested roadway, for five miles. This portion of the corridor is operating at a LOS F and is the area where the only fatality in the corridor occurred. Improvements to the existing roadway in this vicinity are difficult due to the historic downtown Milton area. By developing a new corridor that does not follow the existing US 90 alignment, the traveler would be able to avoid this high traffic area.

2.2.7 Plan Consistency

The proposed new facility is consistent with the Santa Rosa County Comprehensive Plan and is referenced in Policy 4.1.E.3. The Comprehensive Plan design year for this facility is currently 2025, although as the project moves through the next study phase and a formal forecast traffic report is completed, the design year will change to allow for a standard twenty year forecast year to comply with federal guidelines (Design Year 2035).

Likewise, the proposed new facility is in the current adopted State Transportation Improvement Plan (STIP) and current adopted TPO TIP 2013-2017. The current (adopted 2012) STIP includes Preliminary Engineering Funds for the year 2013 totaling nearly \$1.9M. It was also included in the TPO's 2025 LRTP, as well as in the current



INTRODUCTION

2035 LRTP Update as the SR 87 Connector or as part of the larger Outer Beltway Connector. It is listed as a Roadway Capacity Project in the Needs Plan as SR 87 Connector and in the “Beyond 2035” Projects as the Outer Beltway Connector. The Design phase is also listed in the Fiscal Year 2016-2020 Year of Expenditure Cost Feasible Plan in the latest LRTP. Appendix B includes all relevant documentation.

2.3 *Related Projects in the Vicinity*

The following table summarizes the projects in the vicinity of the project study area as per the FDOT Five Year Work Program 2015-2019, September 2014 and the Cost Feasible Plan Amendment in the Florida-Alabama Transportation Improvement Program (TIP), amended June 2014.

Table 2.2 Projects in the Vicinity

Facility	Location	Improvements	FM Number
SR 10 (US 90)	from SR 281 Avalon Boulevard to SR 87 North Stewart Street	Provide 6 lanes of Capacity	60
SR 8 (I-10)	From west of Blackwater Bridge to east of Blackwater Bridge	Resurfacing	428731
SR 10 (US 90)	Glover Lane to SR 87S	Provide 4 lanes of Capacity	416748-4
SR 10 (US 90)	Scenic Highway to Glover Lane	Provide 6 lanes of Capacity	220436-2 220436-3
SR 87	from 2 miles S. Yellow Bridge to CR 184 (Hickory Hammock Road)	Provide 4 lanes of Capacity	2204424
SR 87	from Eglin AFB Boundary to 2 miles S. Yellow Bridge	Provide 4 lanes of Capacity	2204427
SR 87	from N of Five Forks to Eglin AFB Boundary	Provide 4 lanes of Capacity	2204423
SR 281 Avalon Blvd	from Commerce Road to SR 10 (US90)	Provide 4 lanes of capacity	2204125
SR 281 Avalon Blvd	from N of CSX R/R Bridge to S of Commerce Road	Provide 4 lanes of capacity	2204126
SR 281 Avalon Blvd	from S of Moor's Lodge to N of the CSX R/R Bridge	Provide 4 lanes of capacity	2204127
SR 281 Avalon Blvd	from SR 8 (I-10) to S of Moor's Lodge	Provide 4 lanes of capacity	2204128
SR 8 (I-10)	From Escambia Bay Bridge to east SR 281 Avalon Blvd.	R/W future capacity (now is project priority # 3)	4130623

3. EXISTING CONDITIONS

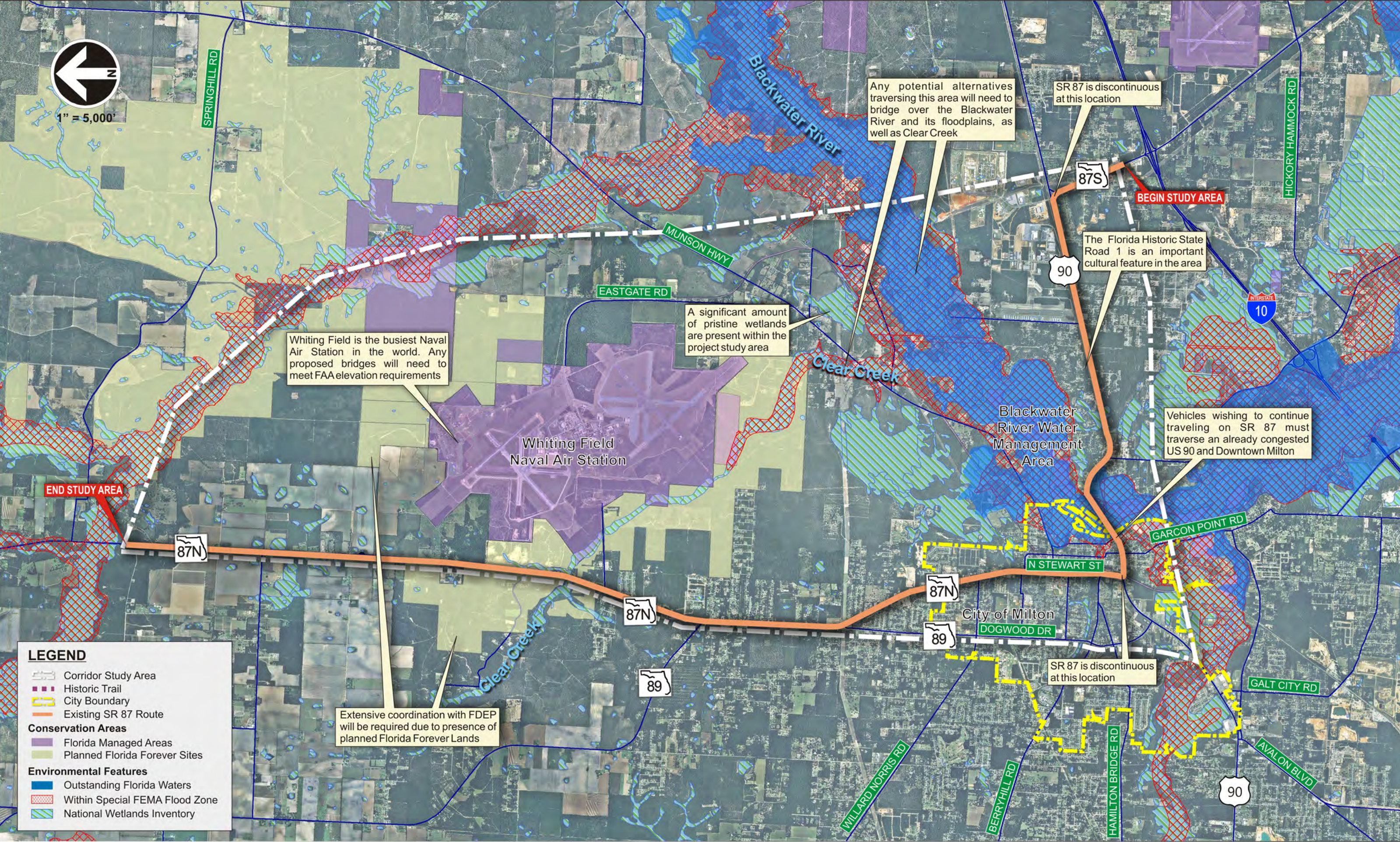
The Florida Department of Transportation (FDOT) is conducting this Project Development and Environment (PD&E) Study to evaluate the potential for providing a new corridor for the missing link of SR 87. The study area extends from just north of I-10 along SR 87S to the south; to the intersection of Southridge Road and SR 87N to the north; just west of SR 89N to the west; and just east of SR 87S to the east (see **Figure 2**) in Santa Rosa County, FL.

As shown on **Figure 2**, the current connection between SR 87S and SR 87N is rather indirect and partly involves a shared facility of SR 87 and US 90. The current route also requires users to traverse Downtown Milton. A direct connection between SR 87N and SR 87S that bypasses Downtown Milton is needed in order to facilitate north/south traffic flow which would provide for a more direct hurricane evacuation route from the NW Florida coastal areas to areas north in Alabama. In addition, a direct connection between SR 87S and SR 87N would also reduce traffic congestion within the City of Milton and alleviate travel demand on the section of US 90 currently shared with SR 87.



Figure 2 summarizes some of the major project considerations within the study area including potential constraints such as the presence of the Whiting Field Naval Air Station, the Blackwater River and a significant amount of environmentally sensitive lands (i.e. planned/existing Florida Forever sites) that will play a key role in the development of project alternatives.

The following sections briefly describe some selected physical, operational and environmental issues prevalent within the study area.



3.1 *Roadway Characteristics of Existing Roadways*

Figure 3 provides a summary of the existing characteristics of SR 87S, SR 87N and US 90. The figure includes details such as functional classification, multimodal features, posted speed, existing AADT, adopted level of service (LOS) and access management classification for the current SR 87 route.

3.1.1 **Bicycle and Pedestrian Facilities**

Designated bicycle facilities are provided along SR 87N from north of Willard Norris Road to Langley St and along SR 87S from Nichols Lake Road to US 90 (see **Figure 3**).

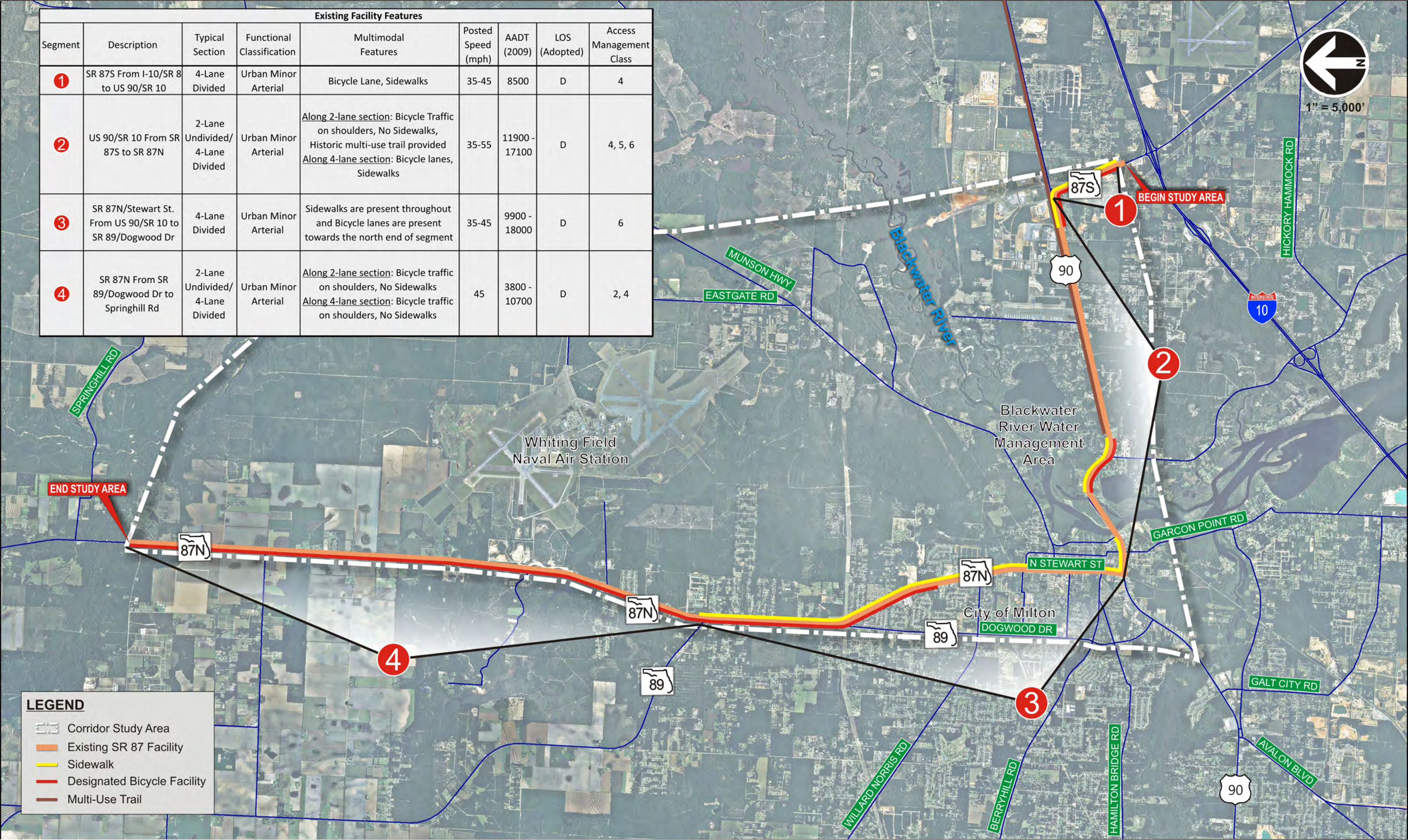
The designated bicycle lanes provided along US 90 are discontinuous and only provided from SR 87S to east of Persimmon Hollow Road and from east of Ward Basin Road to Johnson Road. This accounts for an approximately 2.3 mile stretch that does not provide any designated bicycle facilities; however, paved shoulders are provided. The Old State Road 1/Old Spanish Trail, a multi-use trail, runs parallel to US 90 to east of Ward Basin Road, however access to the multi-use trail from US 90 is provided every 0.5 to 0.7 miles.

There are also three trails located within the project study area. The Blackwater Heritage Trail is an 8.02 mile multi-use path that runs northeast from south of the City of Milton to Whiting Field. Old State Road 1/Old Spanish Trail is a 6 mile former brick road that runs parallel to US 90 from east of Ward Basin Road to east of SA Jones Road. The Blackwater River Canoe Trail is located north of Whiting Field from Munson Highway to north of the project study area.

3.1.2 **Typical Sections**

SR 87S and SR 87N are 4 lane divided minor arterials. The existing typical sections for both SR 87S and SR 87N are urban typical sections consisting of two twelve foot lanes in each direction and a twenty-four foot raised median with type F curb and gutter (see **Figure 4**). Four foot bicycle lanes and six foot sidewalks are provided on both sides of the facilities.

Existing Facility Features								
Segment	Description	Typical Section	Functional Classification	Multimodal Features	Posted Speed (mph)	AADT (2009)	LOS (Adopted)	Access Management Class
1	SR 87S From I-10/SR 8 to US 90/SR 10	4-Lane Divided	Urban Minor Arterial	Bicycle Lane, Sidewalks	35-45	8500	D	4
2	US 90/SR 10 From SR 87S to SR 87N	2-Lane Undivided/ 4-Lane Divided	Urban Minor Arterial	Along 2-lane section: Bicycle Traffic on shoulders, No Sidewalks, Historic multi-use trail provided Along 4-lane section: Bicycle lanes, Sidewalks	35-55	11900 - 17100	D	4, 5, 6
3	SR 87N/Stewart St. From US 90/SR 10 to SR 89/Dogwood Dr	4-Lane Divided	Urban Minor Arterial	Sidewalks are present throughout and Bicycle lanes are present towards the north end of segment	35-45	9900 - 18000	D	6
4	SR 87N From SR 89/Dogwood Dr to Springhill Rd	2-Lane Undivided/ 4-Lane Divided	Urban Minor Arterial	Along 2-lane section: Bicycle traffic on shoulders, No Sidewalks Along 4-lane section: Bicycle traffic on shoulders, No Sidewalks	45	3800 - 10700	D	2, 4



EXISTING CONDITIONS

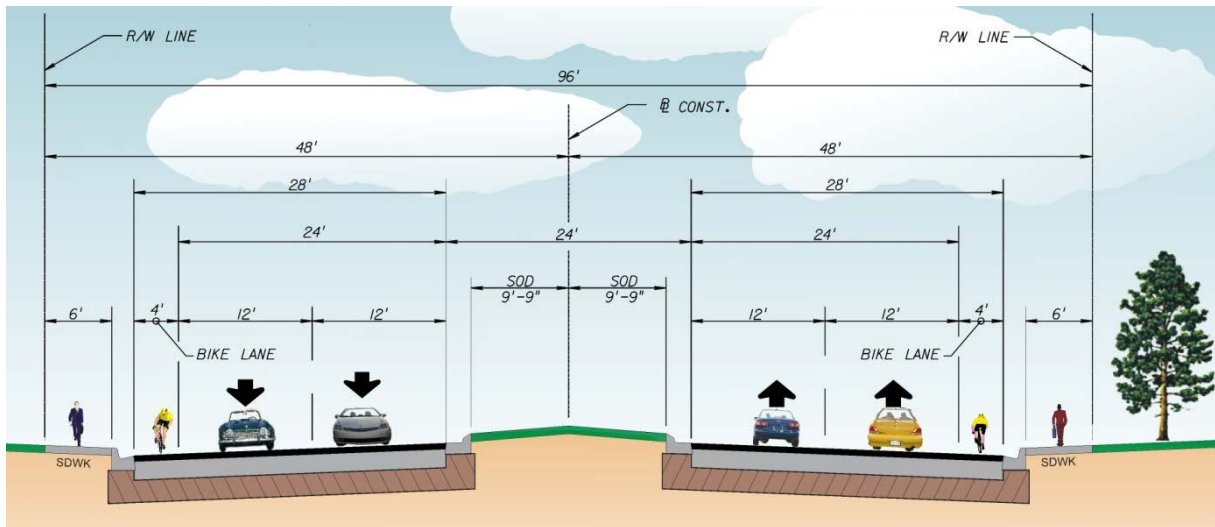


Figure 4: Existing Typical Section (SR 87S and SR 87N)

SR 87N from Oakland Drive to north of SR 89 no longer provides designated bicycle lanes and instead provides paved shoulders. North of Langley Street (the west entrance to Whiting Field) SR 87N transitions to a two lane facility and does not provide sidewalks or bicycle facilities.

3.1.3 Existing Traffic Conditions

US 90 from SR 281/Avalon Boulevard to SR 87N/Stewart Street and from SR 87N/Stewart Street to Airport Road were determined to be capacity deficient segments either presently or by the year 2018 as part of the Congestion Management Process Plan adopted in December 2009.

Existing roadway characteristics were collected and analyzed for each significant roadway segment within the study area. The methods and procedures used to collect the roadway characteristics and evaluate the traffic operational conditions of each roadway segment were based on Chapters 14-96 and 14-97 of the Florida Administrative Code (F.A.C.) Rule, the 2007 FDOT LOS tables, and the 2000 Highway Capacity Manual. The adopted LOS for most roadways is D (see **Figure 3**). The traffic analysis was performed consistent with FDOT guidelines provided in the latest chapters of the PD&E Manual; the FDOT's Project Traffic Forecasting Handbook, 2012; the 2009 FDOT Quality/Level of Service Handbook; FDOT guidance on K factors; and the methodology meeting memorandums. The existing level of service analysis was based on the 2007 FDOT level of service (LOS) standards in order to be consistent with the Florida-Alabama TPO Congestion Management Process Plan that was applicable in 2010.

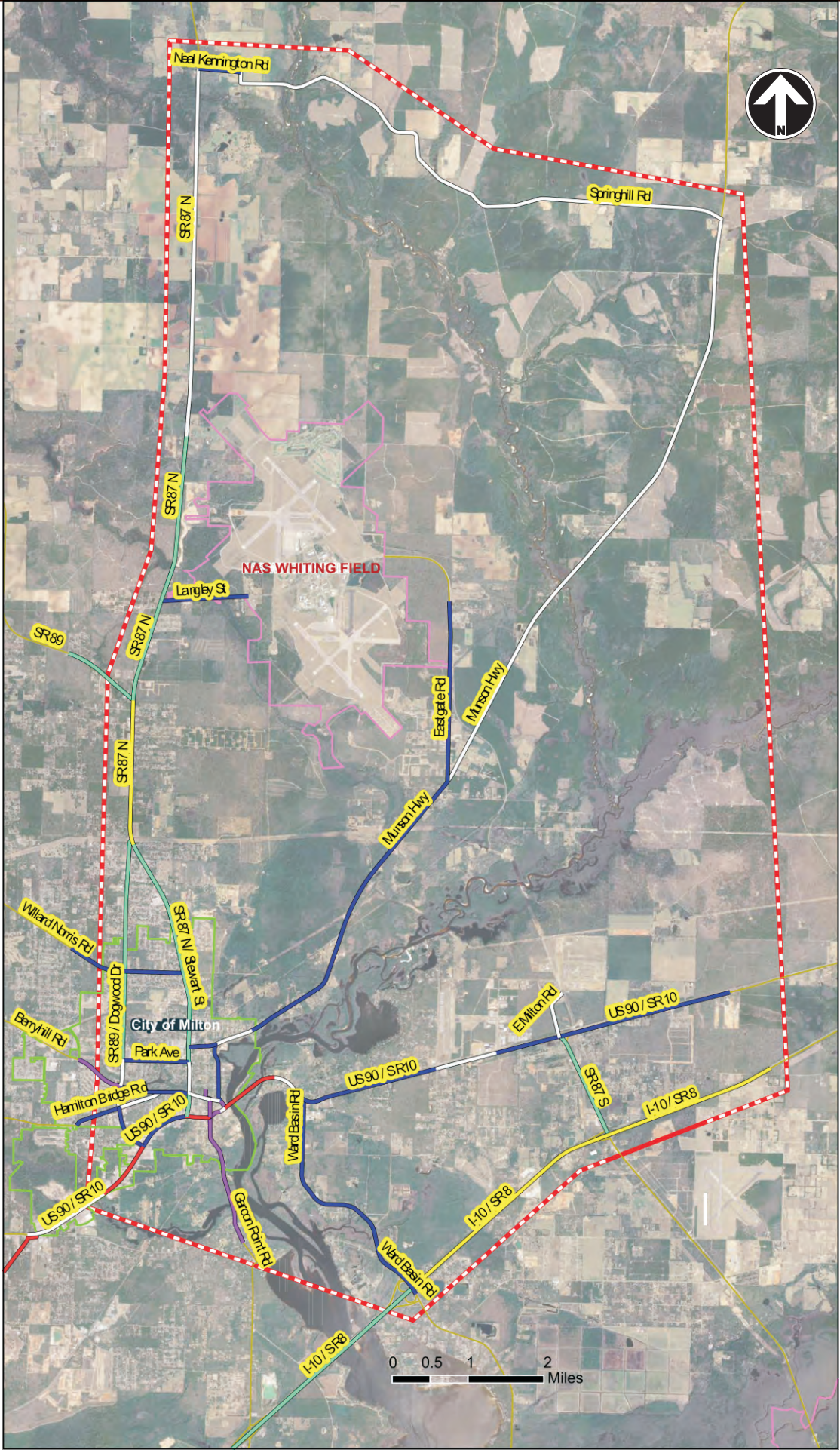
Existing traffic conditions of roadway segments are summarized in **Table 3.1** and existing LOS are shown on **Figure 5**. The existing conditions analysis indicates that

ROADWAY FROM	TO	DIST (Mile)	LANES 2010	Road Classi-fication	Adopted LOS	MSV 2010	AADT	LOS
I-10 / SR 8								
SR 281 / Avalon Blvd	Garcon Point Road	3.92	4	Freeway	C	59800	41,329	C
Garcon Point Road	Ward Basin Road	2.06	4	Freeway	C	59800	33,757	B
Ward Basin Road	SR 87 S / E. Milton Rd	2.78	4	Freeway	C	59800	28,926	B
SR 87 S / E. Milton Rd	Log Lake Road	13.67	4	Freeway	C	59800	20,030	B
US 90 / SR 10								
SR 281 / Avalon Blvd	Parkmore Plaza	0.25	4	Arterial Class II	D	33200	33,390	F
Parkmore Plaza	Glover Lane	0.74	4	Arterial Class II	D	33200	33,970	D
Glover Lane	SR 89 / Dogwood Dr	0.70	4	Arterial Class II	D	33200	28,403	F
SR 89 / Dogwood Dr	SR 87N / Stewart Street	0.64	4	Arterial Class II	D	33200	14,916	C
SR 87N / Stewart Street	Canal Street	0.27	2	Arterial Class I	D	16500	16,530	F
Canal Street	Elmira Street	0.14	2	Arterial Class I	D	16500	13,260	C
Elmira Street	Broad Street / Willing St	0.06	2	Arterial Class I	D	16500	13,280	C
Broad Street / Willing Street	Johnson Road/Milton Trail	0.69	2	Arterial Class I	D	16500	19,113	F
Johnson Road/Milton Trail	Dale St / Ward Basin Rd	0.42	2	Arterial Class I	D	16500	17,701	F
Dale St / Ward Basin Rd	Airport Road	1.26	2	Arterial Class I	D	16500	12,679	C
Airport Road	Industrial Blvd	0.97	2	Arterial Class I	D	16500	13,526	C
Industrial Blvd	SR 87 S / E. Milton Rd	0.75	2	Arterial Class I	D	16500	13,016	C
SR 87 S / E. Milton Rd	S. A. Jones Road	5.83	2	Uninterrupted	C	15100	5,781	B
HAMILTON BRIDGE ROAD								
Glover Lane	SR 89 / Dogwood Drive	0.54	2	Other Road	D	10700	2,709	B
SR 89 / Dogwood Drive	Berryhill Road	0.47	2	Other Road	D	10700	1,697	B
BERRYHILL ROAD / CR 184 A								
Glover Lane	SR 89 / Dogwood Drive	0.57	2	Non State	D	14850	8,041	C
SR 89 / Dogwood Drive	SR 87 N / Stewart Street	0.79	2	Other Road	D	10700	5,790	C
SR 87 N / Stewart Street	Canal Street	0.26	2	Other Road	D	10700	4,881	B
Canal Street	Broad Street	0.10	2	Other Road	D	10700	4,277	B
PARK AVENUE								
SR 89 / Dogwood Drive	SR 87 N / Stewart Street	0.75	2	Other Road	D	10700	1,299	B
WILLIARD NORRIS ROAD / MAGNOLIA STREET / CR-191								
Northrop Road	SR 89 / Dogwood Drive	1.71	2	Non State	D	14850	5,853	B
SR 89 / Dogwood Drive	SR 87 N / Stewart Street	0.68	2	Non State	D	14850	2,772	B
LANGLEY STREET / CR 87 A								
SR 87 N / Stewart Street	NAS Whiting Field	0.94	2	Non State	D	14850	7,164	B
SPRINGHILL ROAD / NEAL KENNINGTON ROAD								
SR 87 N / Stewart Street	Lewis Road	0.60	2	Arterial Class I	D	16500	1,204	B
Lewis Road	Munson Highway	6.16	2	Arterial Class I	D	16500	242	B
SR 281 / AVALON BLVD								
I-10	US 90 / SR 10	4.88	2	Arterial Class I	D	16500	15,228	B
SR 89 / DOGWOOD DRIVE								
US 90 / SR 10	Hamilton Bridge Road	0.53	4	Arterial Class II	D	33200	19,705	C
Hamilton Bridge Road	Berryhill Road	0.25	4	Arterial Class II	D	33200	19,368	C
Berryhill Road	Park Avenue	0.29	4	Arterial Class I	D	36700	19,387	B
Park Avenue	Williard N. Rd/Magnolia St	0.99	4	Arterial Class I	D	36700	16,933	B
Williard Norris Rd/Magnolia St	SR 87 N / Stewart Street	1.51	4	Arterial Class I	D	36700	8,070	B
SR 87 N / Stewart Street	West	1.81	2	Uninterrupted	D	22200	4,941	B
SR 87 N / Stewart Street								
US 90 / SR 10	Berryhill Road	0.26	4	Arterial Class I	D	36700	16,999	B
Berryhill Road	Park Avenue	0.34	4	Arterial Class I	D	36700	17,178	B
Park Avenue	Magnolia Street	1.01	4	Arterial Class I	D	36700	14,923	B
Magnolia Street	SR 89 S./ Dogwood Drive	1.67	4	Arterial Class I	D	36700	10,158	B
SR 89 S./ Dogwood Drive	SR 89 North	1.57	4	Arterial Class I	D	36700	17,676	B
SR 89 North	Langley Street	1.20	4	Arterial Class I	D	36700	11,436	B
Langley Street	Whiting Field Circle	0.45	4	Arterial Class I	D	36700	7,512	B
Whiting Field Circle	Springhill Rd / Neal K. Rd	5.59	2	Uninterrupted	D	21100	6,542	B
ALABAMA ST & HENRY ST (CR 191) / CANAL ST								
South of US 90 / SR 10	US 90 / SR 10	0.41	2	Non State	D	14850	7,439	B
US 90 / SR 10	North of US 90 / SR 10	0.19	2	Non State	D	14850	3,064	B
BROAD STREET & WILLING STREET (CR 191)								
US 90 / SR 10	Berryhill Road	0.11	2	Non State	D	14850	6,119	B
Berryhill Road	Munson Highway / CR 191	0.63	2	Non State	D	14850	4,233	B
WARD BASIN ROAD								
I-10	South Airport Road	1.73	2	Non State	D	14850	3,891	B
US 90 / SR 10	US 90 / SR 10	0.93	2	Non State	D	14850	3,135	B
AIRPORT ROAD								
South of US 90 / SR 10	US 90 / SR 10	0.97	2	Other Road	D	10700	248	B
US 90 / SR 10	North of US 90 / SR 10	0.85	2	Other Road	D	10700	598	B
SR 87 S								
Hickory Hammock Road	I-10	2.10	4	Arterial Class I	C	35500	14,450	B
I-10	US 90 / SR 10	1.24	4	Arterial Class I	D	36700	11,966	B
MUNSON HIGHWAY / CR 191								
SR 87 N / Stewart Street	Broad Street	0.31	2	Other Road	D	10700	3,979	B
Broad Street	Munson Lane	0.45	2	Other Road	D	10700	3,101	B
Munson Lane	CR 87 A	1.91	2	Non State	D	14850	3,668	B
CR 87 A	Springhill Road	7.39	2	Uninterrupted	D	21100	1,570	B
CR 87 A / WHITING FIELD CIRCLE / EAST ENTRANCE								
Munson Highway	NAS Whiting Field	2.47	2	Non State	D	14850	2,230	B
OLD US 90								
Canal St / Henry Street	US 90 / SR 10	1.03	2	Non State	D	14850	741	B

Roadway FROM	TO	DIST (Mile)	LANES 2010	Road Classi-fication	Adopted LOS	MSV 2010	AADT	LOS
I-10 / SR 8								
SR 281 / Avalon Blvd	Garcon Point Road	3.92	4	Freeway	C	59800	41,329	C
Garcon Point Road	Ward Basin Road	2.06	4	Freeway	C	59800	33,757	B
Ward Basin Road	SR 87 S / E. Milton Rd	2.78	4	Freeway	C	59800	28,926	B
SR 87 S / E. Milton Rd	Log Lake Road	13.67	4	Freeway	C	59800	20,030	B
US 90 / SR 10								
SR 281 / Avalon Blvd	Parkmore Plaza	0.25	4	Arterial Class II	D	33200	33,390	F
Parkmore Plaza	Glover Lane	0.74	4	Arterial Class II	D	33200	33,970	F
Glover Lane	SR 89 / Dogwood Dr	0.70	4	Arterial Class II	D	33200	28,403	D
SR 89 / Dogwood Dr	SR 87N / Stewart Street	0.64	4	Arterial Class II	D	33200	14,916	C
SR 87N / Stewart Street	Canal Street	0.27	2	Arterial Class I	D	16500	16,530	F
Canal Street	Elmira Street	0.14	2	Arterial Class I	D	16500	13,260	C
Elmira Street	Broad Street / Willing St	0.06	2	Arterial Class I	D	16500	13,280	C
Broad Street / Willing Street	Johnson Road/Milton Trail	0.69	2	Arterial Class I	D	16500	19,113	F
Johnson Road/Milton Trail	Dale St / Ward Basin Rd	0.42	2	Arterial Class I	D	16500	17,701	F
Dale St / Ward Basin Rd	Airport Road	1.26	2	Arterial Class I	D	16500	12,679	C
Airport Road	Industrial Blvd	0.97	2	Arterial Class I	D	16500	13,526	C
Industrial Blvd	SR 87 S / E. Milton Rd	0.75	2	Arterial Class I	D	16500	13,016	C
SR 87 S / E. Milton Rd	S. A. Jones Road	5.83	2	Uninterrupted	C	15100	5,781	B
HAMILTON BRIDGE ROAD								
Glover Lane	SR 89 / Dogwood Drive	0.54	2	Other Road	D	10700	2,709	B
SR 89 / Dogwood Drive	Berryhill Road	0.47	2	Other Road	D	10700	1,697	B
BERRYHILL ROAD / CR 184 A								
Glover Lane	SR 89 / Dogwood Drive	0.57	2	Non State	D	14850	8,041	C
SR 89 / Dogwood Drive	SR 87 N / Stewart Street	0.79	2	Other Road	D	10700	5,790	C
SR 87 N / Stewart Street	Canal Street	0.26	2	Other Road	D	10700	4,881	B
Canal Street	Broad Street	0.10	2	Other Road	D	10700	4,277	B
PARK AVENUE								
SR 89 / Dogwood Drive	SR 87 N / Stewart Street	0.75	2	Other Road	D	10700	1,299	B
WILLIARD NORRIS ROAD / MAGNOLIA STREET / CR-191								
Northrop Road	SR 89 / Dogwood Drive	1.71	2	Non State	D	14850	5,853	B
SR 89 / Dogwood Drive	SR 87 N / Stewart Street	0.68	2	Non State	D	14850	2,772	B
LANGLEY STREET / CR 87 A								
SR 87 N / Stewart Street	NAS Whiting Field	0.94	2	Non State	D	14850	7,164	B
SPRINGHILL ROAD / NEAL KENNINGTON ROAD								
SR 87 N / Stewart Street	Lewis Road	0.60	2	Arterial Class I	D	16500	1,204	B
Lewis Road	Munson Highway	6.16	2	Arterial Class I	D	16500	242	B
SR 281 / AVALON BLVD								
I-10	US 90 / SR 10	4.88	2	Arterial Class I	D	16500	15,228	B
SR 89 / DOGWOOD DRIVE								
US 90 / SR 10	Hamilton Bridge Road	0.53	4	Arterial Class II	D	33200	19,705	C
Hamilton Bridge Road	Berryhill Road	0.25	4	Arterial Class II	D	33200	19,368	C
Berryhill Road	Park Avenue	0.29	4	Arterial Class I	D	36700	19,387	B
Park Avenue	Williard N. Rd/Magnolia St	0.99	4	Arterial Class I	D	36700	16,933	B
Williard Norris Rd/Magnolia St	SR 87 N / Stewart Street	1.51	4	Arterial Class I	D	36700	8,070	B
SR 87 N / Stewart Street	West	1.81	2	Uninterrupted	D	22200	4,941	B
SR 87 N / Stewart Street								
US 90 / SR 10	Berryhill Road	0.26	4	Arterial Class I	D	36700	16,999	B
Berryhill Road	Park Avenue	0.34	4	Arterial Class I	D	36700	17,178	B
Park Avenue	Magnolia Street	1.01	4	Arterial Class I	D	36700	14,923	B
Magnolia Street	SR 89 S./ Dogwood Drive	1.67	4	Arterial Class I	D	36700	10,158	B
SR 89 S./ Dogwood Drive	SR 89 North	1.57	4	Arterial Class I	D	36700	17,676	B
SR 89 North	Langley Street	1.20	4	Arterial Class I	D	36700	11,436	B
Langley Street	Whiting Field Circle	0.45	4	Arterial Class I	D	36700	7,512	B
Whiting Field Circle	Springhill Rd / Neal K. Rd	5.59	2	Uninterrupted	D	21100	6,542	B
ALABAMA ST & HENRY ST (CR 191) / CANAL ST								
South of US 90 / SR 10	US 90 / SR 10	0.41	2	Non State	D	14850	7,439	B
US 90 / SR 10	North of US 90 / SR 10	0.19	2	Non State	D	14850	3,064	B
BROAD STREET & WILLING STREET (CR 191)								
US 90 / SR 10	Berryhill Road	0.11	2	Non State	D	14850	6,119	B
Berryhill Road	Munson Highway / CR 191	0.63	2	Non State	D	14850	4,233	B
WARD BASIN ROAD								
I-10	South Airport Road	1.73	2	Non State	D	14850	3,891	B
US 90 / SR 10	US 90 / SR 10	0.93	2	Non State	D	14850	3,135	B
AIRPORT ROAD								
South of US 90 / SR 10	US 90 / SR 10	0.97	2	Other Road	D	10700	248	B
US 90 / SR 10	North of US 90 / SR 10	0.85	2	Other Road	D	10700	598	B
SR 87 S								
Hickory Hammock Road	I-10	2.10	4	Arterial Class I	C	35500	14,450	B
I-10	US 90 / SR 10	1.24	4	Arterial Class I	D	36700	11,966	B
MUNSON HIGHWAY / CR 191								
SR 87 N / Stewart Street	Broad Street	0.31	2	Other Road	D	10700	3,979	B
Broad Street	Munson Lane	0.45	2	Other Road	D	10700	3,101	B
Munson Lane	CR 87 A	1.91	2	Non State	D	14850	3,668	B
CR 87 A	Springhill Road	7.39	2	Uninterrupted	D	21100	1,570	B
CR 87 A / WHITING FIELD CIRCLE / EAST ENTRANCE								
Munson Highway	NAS Whiting Field	2.47	2	Non State	D	14850	2,230	B
OLD US 90								
Canal St / Henry Street	US 90 / SR 10	1.03	2	Non State	D	14850	741	B

Legend

Deficient Segment



Legend

Daily LOSs

N/A

A

B

C

D

F

Major Roadways

City

Military Bases

Preliminary Area of Influence

EXISTING CONDITIONS

most of the existing roadway segments are operating at an acceptable daily LOS varying from A to D. Three segments along the US 90 corridor within the study area, however; are operating at LOS F: (1) from SR 821/Avalon Blvd to Glover Lane, (2) from SR 87N/Stewart Street to Canal Street; and (3) from Elmira Street to Dale St/Ward Basin Road. It should be noted that the segment of SR 281/Avalon Boulevard from I-10 to US 90 is currently under construction to be a four lane highway increasing its capacity.

3.1.4 Transit

Santa Rosa County started operating a public transit system at the start of this study. Bus routes (eastbound route and westbound route) operated along US 90 from SR 87S to south of Woodbine Road between the cities of Pensacola and Milton. Multiple bus stops are also provided within downtown Milton. However, the funding source for this transit is no longer available. The County is looking to begin service again in 2016. No other transit is provided in the project vicinity.



The Santa Rosa County transit system offers east-west routes, and connects to the Escambia County Area Transit system.

3.2 Social and Environmental Characteristics

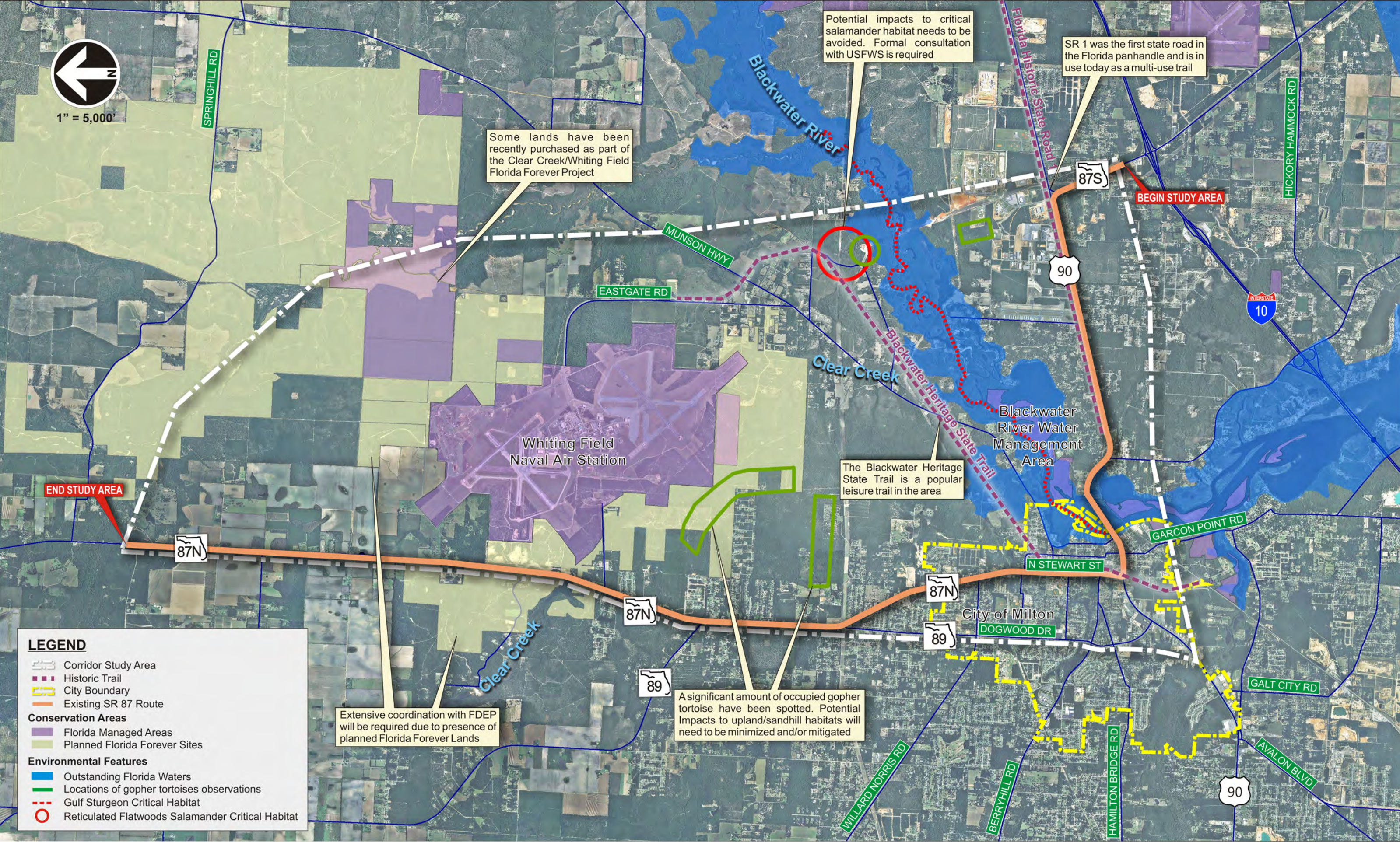
Figure 6 illustrates some of the key social and environmental features with the project study area such as critical habitats, historical features and protected areas. The following sections briefly summarize some of the key environmental considerations prevalent within the project study area. As shown on **Figure 6**, the project study area includes a significant amount of environmentally sensitive lands such as pristine wetlands, Outstanding Florida Waters, planned/existing Florida Forever sites and areas within flood zones that will dictate the potential alignment of the connector.

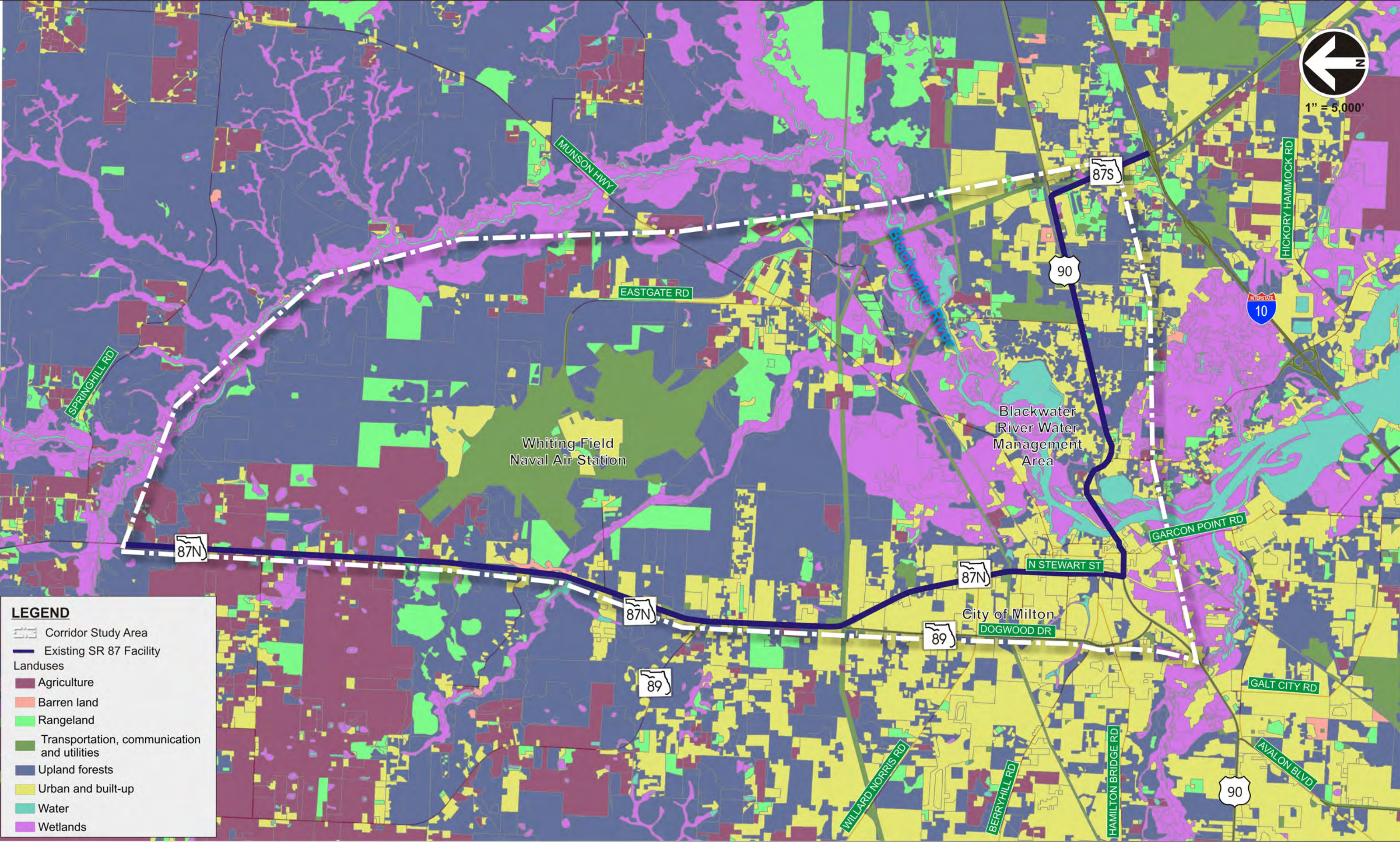
3.2.1 Land Use

As was previously mentioned, a significant amount of lands within the project study area are environmentally sensitive areas including the Blackwater River Water Management Area, existing/planned Florida Forever Lands and various wetlands and endangered species habitats.

Whiting Field, a Naval Air Station is located approximately 3 miles north of the City of Milton. NAS Whiting Field is approximately 4,010 acres in size and is considered to be the busiest naval air station in the world.

Much of the land within the northern study area is utilized for agricultural purposes. The southern terminus, along US 90 is developed primarily for institutional and industrial uses. Along the existing SR 87 route there are multiple residential and commercial sites. See **Figure 7** for existing land uses within the project study area.





3.2.2 Wetlands

The wetland classifications in the area according to Florida Natural Areas Inventory (FNAI) include seepage slope/wet prairie, basin swamp, dome swamp and bottomland forest. Wetlands in the project area are medium/high quality wetlands. Anomalies do exist where power lines have been constructed through wetlands, where silvicultural activities are conducted or wetlands are adjacent to development.

In general, the existing wetland hydrology supports the natural communities and no significant alternation in hydroperiods from historic patterns exists. Many of the wetlands in the project area are associated with the Blackwater River Water Management Area or the Clear Creek floodplain area (see **Figure 6**).

3.2.3 Wildlife and Critical Habitat

Designated critical habitat is defined as a specific area within the geographic area occupied by a federally listed species at the time it is listed. Critical habitats contain physical and biological features that are considered essential to the conservation of the species and require special management considerations for protection.

A designated critical habitat (unit RFS-2, Subunit A) for the reticulated flatwoods salamander (on federal and state endangered species list) is located within the study area (see **Figure 6**). This critical habitat unit contains all of the primary constituent elements and supports multiple life stages of the reticulated flatwoods salamander.

The Blackwater River within the alignment area is a designated critical habitat for the Gulf sturgeon (on federal and state threatened species list) (see **Figure 6**). This portion of the Blackwater River is part of critical habitat unit 4, which consists of the Yellow River system in Santa Rosa and Okaloosa Counties, Florida and Covington County, Alabama. The Blackwater River is a tributary to the Yellow River and is therefore included in the critical habitat unit. Both alternatives cross the Blackwater River.

It should also be noted that a number of federally and state listed wildlife species have a potential for involvement in this project due to the fact that the upland habitats are predominantly suitable for multiple species and the wetlands have relatively minor disturbances. More specifically, the alternatives traverse sandhill habitat that is appropriate for gopher tortoise (on state threatened species list). Approximately 55 potentially occupied burrows were seen within the project study area (see **Figure 6**).

3.2.4 Special Designation

As of June 30, 2011, the Florida Department of Environmental Protection (FDEP), using Florida Forever Funds, purchased several parcels east of Whiting Field Naval Air Station that are part of the Clear Creek/Whiting Field Florida Forever Board of Trustees Project. Additionally, multiple parcels surrounding Whiting Field Naval Air Station are Florida Forever future/planned sites (see **Figure 6**).

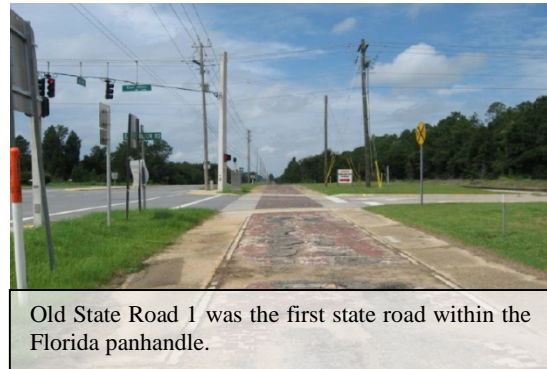
EXISTING CONDITIONS

It should also be noted that the Blackwater River is designated as an Outstanding Florida Water and as such, as provided the highest level of protection under the Florida Administrative Code (FAC) 62-302.700.

3.2.5 Cultural Features and Community Services

Based on the Cultural Resources Probability Assessment (CRPA) and field surveys, no archaeological resources were found within the project study area. The potential for a sunken vessel located near the proposed SR 87 Blackwater River Bridge was noted, although research and interviews failed to shed any light on the type, size, date or exact location within the river.

The historical/architectural survey identified nine historic resources including one previously recorded NRHP-listed historic road (SR 1 [8SR1313]; listed 1994). Old State Road 1/Old Spanish Trail (see right and **Figure 6**) is a 6 mile brick road that runs parallel to US 90 from east of Ward Basin Road to east of SA Jones Road. It is significant as the first state road within the Florida panhandle and maintains its integrity as a historic brick road.



Old State Road 1 was the first state road within the Florida panhandle.

Additionally, two unrecorded historic railroad alignments are located within the Area of Potential Effect (APE). The Blackwater Heritage Trail was the original alignment for the Bagdad Lumber Company railroad between Bagdad and Munson, which later became the Florida Alabama Railroad. The CSX railroad, running along the north side of US 90, was initially chartered by the Louisville & Nashville Railroad in 1881 as the Pensacola and Atlantic Railroad. With the exception of State Road 1, however; none of the previously or newly recorded historic resources is considered eligible for listing in the NRHP due to the compromised integrity and the lack of significant historical association. In addition, there is no potential for historic districts due to the low concentration of historic resources with integrity and significance.

The Blackwater Heritage State Trail is an 8.02 mile recreational trail and conservation land managed by the Florida Department of Environmental Protection (FDEP) Office of Greenways and Trails. The trail is available for biking, running, walking, in-line skating, rollerblading, horseback riding, and bird watching. Recreational resources on the Blackwater Heritage State Trail that are listed on the trail map include the 8.02 mile paved multi-use trail, a visitor center, and three trailheads: the Milton Trailhead, the Munson Highway/Equestrian Trailhead, and the Whiting Field Naval Air Station Trailhead (Whiting Field Trailhead). The trailheads feature parking, picnic tables, gazebos, restrooms and equestrian facilities.

EXISTING CONDITIONS

Additionally, Downtown Milton has been named one of the Florida Trust for Historic Preservation's Eleven Most Endangered Sites three years in a row (2010, 2011 and 2012) because of devastation from a 2009 fire in the heart of the historic district, as well as transportation expansion pressures that could destroy the remaining core of the downtown and surrounding neighborhoods. The Historic District is comprised of turn of the century vernacular commercial, residential, and religious buildings.

3.3 *Drainage*

The existing runoff along SR 87N in the City of Milton and to the north up to the SR 89N split, is collected via closed drainage system. Roadside ditches collect runoff north of the SR 89N split and directs it into ponds along the FDOT right-of-way. The FDOT Maintenance Office does not know of any reoccurring flooding issues on FDOT facilities within the limits of this project. There has been little record of reoccurring flooding with the existing conditions, except during major storm events such as hurricanes. However, Karen Thornhill, Santa Rosa County Floodplain Manager, stated that the Gulf Power Easement along Pat Brown Road repeatedly floods to the 100 year flood zone line.

The existing drainage within the project study area primarily functions by overland sheet flow which discharges into wetlands adjacent to Clear Creek and Blackwater River. No treatment is provided nor required prior to discharge except at the developments near East Milton Road and Season Drive. The majority of the land within the study area is used for agricultural purposes.

3.3.1 **Floodplains**

The Blackwater River is 57 miles in length and collects runoff from southern Alabama and northern Santa Rosa County. The river is attributed to a wide floodplain and regulatory floodway. Clear Creek is a tributary to the Blackwater River, and has a floodplain associated with the creek, however, Clear Creek is not a regulatory floodway. The project also has significant changes in elevation near the Blackwater River and “rolling hills” in the agricultural areas in the northern portion of the project. The majority of the study area has an elevation of 70 feet or greater and is outside flood zones associated with risk from the 500 year event.

Within the limits of the Blackwater River floodplain, the existing ground elevations are between -5.3 feet and 51.8 feet. The existing ground elevations within the Clear Creek floodplain are from 5.7 feet to 19.9 feet. Throughout the remainder of the project (in Flood Zone X), existing ground elevations range from 10.0 feet to 179.0 feet.

3.4 *Soils*

The soil conditions within the project study area vary significantly depending on location, elevation, and proximity to wetlands and floodplains. The soils reported in the USDA Soil Survey consist of Loamy Sand, Troup Loamy Sand, Troup Orange, Bibb Kinston, Pactolous Loamy, Lakeland Sand, Kalmia Loamy, Rutlege Loamy, Albany Loamy, Bonifay Loamy, Rains Fine Loamy, and Dothan Fine. **Table 3.2** summarizes the primary soils found within the project study area.

Table 3.2 Soils in Project Area

Soil #	Soil Name	Seasonal High Water Table
1	Albany Loamy Sand 0-5% Slopes	12-30"
3	Bibb-Krinston Association	<10"
5	Bonifay Loamy Sand 0-5% Slopes	>72"
9	Dothan Fine Sandy Loam 2-5% Slopes	42-48"
14	Fuquay Loamy Sand 0-5% Slopes	>72"
19	Kalmia Loamy Fine Sand 2-5% Slopes	>72"
21	Lakeland Sand 0-5% Slopes	>72"
22	Lakeland Sand 0-5% Slopes	>72"
34	Pactolus Loamy Sand 0-5% Slopes	18-30"
37	Rains Fine Sandy Loam	0-10"
40	Rutlege Loamy Sand	At or Near Surface
44	Troup Loamy Sand 0-5% Slopes	>72"

3.5 Utilities

To determine the extent of utility adjustments required by project improvements, local utility companies that may have facilities within the project limits were contacted and requested to submit the location of their existing and planned facilities. **Table 3.3** presents a list of utilities as well as a description. As the study progresses, continued coordination will take place with all pertinent utility companies. It should also be noted that Santa Rosa County is currently planning to build the East Milton Wastewater Treatment Plant within the project area northwest of the Santa Rosa Correctional Institute.

Table 3.3 Existing Utilities

Utility Owner	Representative Contact Information	Type/Size of Utility and Location
AT&T	Nancy Spence 707.918.5424	Telephone main lines
AT&T Distribution	Allan Rudolph 850.436.1488	Telephone – Fiber Optic and Copper Aerial and Buried (50% / 50%) On most roadways & serves Whiting Field
City of Milton	Jesse Cornell 850.983.5428	Water: Throughout City of Milton, 4" and 6" mains along Munson Highway Sanitary Sewer: Sewer system in City and up Munson Highway to Eastgate Rd. Natural Gas: In City Limits
CSX Railroad	Hal Gibson 904.359.1048	Railroad along north side of US 90
East Milton Water System, Inc.	Uwe K. Rogers 850.623.8750	Water mains east of Bridge on US 90, and at intersection of SR 87S and US 90
Gulf Power	Chad Swails (FDOT Projects) 850.429.2446	Power poles and overhead electric throughout Milton Area Transmission Lines run north from US 90 and SR 87S intersection and east-west across Blackwater River
Level 3 Communications	Relocations Dept. 877.366.8344	Buried Telephone
MCI	Investigations 972.729.6016	Buried Telephone and Fiber Optics

EXISTING CONDITIONS

Table 3.3 Existing Utilities

Utility Owner	Representative Contact Information	Type/Size of Utility and Location
Mediacom	Eddie Arnold 850.934.2560	Cable TV, buried & overhead, located throughout residential areas
Okaloosa Gas	Essa Rhebi 850.729.4870	8" and 12" Transmission Lines run east-west on Willard Norris Rd./Magnolia Street on easement under Blackwater River AND 4" Gas Transmission feeding Whiting Field from SR 87
Point Baker Water System, Inc.	Tony Mathis 850.623.4545	Water lines north of Milton – but does not serve Whiting Field
Qwest	Dwain Alverson 850.232.0072	Buried Fiber Optics in 4 orange ducts parallel US 90 on north side of Railroad
Southern Light, LLC	Andru Bramblett 251.662.1170	Fiber Optic mostly aerial (65%), Customers: Department of Defense, and other large communication needs. Not in residential areas
Sprint Nextel	Mark Caldwell 407.838.5602	Fiber Optic, serving residential and commercial properties in Milton

4. DESIGN CONTROL AND STANDARDS

Design controls and standards must be established prior to the formulation of design alternatives to ensure an adequate, safe, functional, and operational roadway. These criteria are needed to develop typical sections, horizontal and vertical alignments, and other design features such as drainage, aesthetics, landscaping, and multimodal facilities. The controls and standards follow Florida Department of Transportation (FDOT) requirements for urban and high speed urban roadway sections.

4.1 Roadway Geometric Design

Table 4.1 Design Criteria

DESIGN ELEMENT	DESIGN STANDARD		
	SR 87 from US 90 to Blackwater River Bridge	SR 87 from Blackwater River Bridge to SR 87N	Munson Highway (CR 191)
Roadway Classification	Urban Principal Arterial	Rural	Rural
Design Vehicle	WB-62FL		
Design Speed	50 mph	65	45 mph
HORIZONTAL ALIGNMENT			
Maximum Curvature	6.5°	4°15'	10°15'
Max Deflection w/o Horizontal Curve	1°	0°45'	0°45'
Length of Horizontal Curve			
Desired	750'	975'	675'
Minimum	400'	400'	400'
Minimum Stopping Sight Distance	425'	645'	360'
Superelevation			
NC	2°	0°15'	2°45'
RC	4°45'	0°30'	6°
Super Transition Slope Rates	1:150	1:250	1:150
VERTICAL ALIGNMENT			
Maximum Profile Grade	6%	5%	5%
Max Length at Max Grade for bicyclists	800' at 5-6%		
Maximum Change in Grade w/o Vertical Curve	0.6	0.3	0.7
Crest Vertical Curve			
Min. Length	L = 300'	L = 450'	L = 135'
K	K = 136	K = 313	K = 98
Sag Vertical Curve			
Min. Length	L = 200'	L = 350'	L = 135'
K	K = 96	K = 157	K = 79
Min Vertical Clearance			



DESIGN CONTROL AND STANDARDS

Table 4.1 Design Criteria

DESIGN ELEMENT	DESIGN STANDARD			
	SR 87 from US 90 to Blackwater River Bridge	SR 87 from Blackwater River Bridge to SR 87N	Munson Highway (CR 191)	
Roadways	N/A			
Rail Corridor	N/A			
Overhead Sign Structures	17'-6"			
Signals	17'-6"			
LANE WIDTHS	12'			
MEDIAN WIDTHS	22'	40'	N/A	
MEDIAN SHOULDER WIDTH	Full Width	Full Width		
4-lane with gutter	8	0		
4-lane without gutter	13.5	8		

4.2 Drainage Design Criteria

Design criteria for Santa Rosa County, the Northwest Florida Water Management District (NFWFMD) (the regulatory agency having jurisdiction over the project area) and for the FDOT have been reviewed and are presented within. The following is a summary of the adopted criteria to be used for the drainage design of this project.

Table 4.2 Drainage Design Criteria

REGULATING AGENCY	TREATMENT REQUIREMENTS		ATTENUATION REQUIREMENTS	
	Reference	Rule	Reference	Rule
Santa Rosa County	<i>Land Development Code - 4.03.06 (F)</i>	Capacity of facility to retain/detain with filtration at least the first inch of runoff for design storm event.	<i>Land Development Code - 4.03.06 (F)</i>	Limit stormwater peak rate and timing to pre-development conditions up to and including 100 year critical duration storm
				Drainage systems in areas with no positive drainage outlet shall be designed to include retention of the 100 year, 24 hour storm with no offsite discharge
NFWFMD & DEP	ERP Applicant's Handbook Volume II - 5.2 a	Retention Offline systems - First 1/2 inch of runoff from the contributing area	<i>ERP Applicant's Handbook Volume II - 3.3a</i>	Rate Control to a stream or open lake watershed - Post-dev not exceed pre-dev rate for 25 year, 24 hour design storm, using NRCS type III rainfall distribution, amc II
	ERP Applicant's Handbook Volume II - 5.2 b	Retention Online systems - First one-inch of rainfall over the contributing basin with a minimum of 1/2 inch of runoff retained		Rate Control to a stream or open lake watershed - if greater than 50% impervious: Post-dev not exceed pre-dev rate for 2 year, 24 hour and larger events, using NRCS type III rainfall, amc II if discharging to streambank and must be met concurrent with flood control requirements

Table 4.2 Drainage Design Criteria

REGULATING AGENCY	TREATMENT REQUIREMENTS		ATTENUATION REQUIREMENTS	
	Reference	Rule	Reference	Rule
	ERP Applicant's Handbook Volume II - 5.2	Direct discharge to OFW, retention for an additional 50% of the applicable treatment volume must be provided	<i>ERP Applicant's Handbook Volume II - 3.3b</i>	Volume Control for a closed basin/lake: Post-dev not exceed pre-dev volume resulting from 25 year, 96 hour storm
	ERP Applicant's Handbook Volume II - 8.2	Wet detention - 1" from contributing area, direct to OFW, retention for an additional 50% of the applicable treatment volume	<i>ERP Applicant's Handbook Volume II - 8.6</i>	Wet detention systems that do not provide a littoral zone shall provide either: a. an additional 50% of the permanent pool volume, or b. pre-treatment of the stormwater prior to entering the wet detention pond
FDOT	Not Applicable		FDOT Drainage Manual - 5.3.1.2	Watersheds with Postitive Outlets: Post-dev discharge rates do not exceed pre-dev for the 2-year through 100- year critical duration (1hour through 3 day) storm
			FDOT Drainage Manual - 5.3.1.3	Watersheds without Positive Outlets: Post-dev discharge volumes do not exceed pre-dev for the 2-year through 100-year critical duration (1hour through 10 day) storm
			FDOT Stormwater Management Facility Handbook - 5.1.2.2	Open Basins - For a given frequency, post-dev runoff rate for each duration be less than or equal to the pre-dev runoff rate of the corresponding duration. Whichever duration is the closest to the pre-dev is the critical duration
				Closed Basins - For a given frequency, post-dev runoff volumes for each duration cannot exceed the pre-dev runoff volumes of corresponding duration



5. ALTERNATIVES CONSIDERED

Previous sections of this report thoroughly documented the project area's existing deficiencies, needs and future conditions. Based on these factors and also public/agency input, a comprehensive alternative development and evaluation process was initiated and conducted for the proposed project improvements as documented herein.

As illustrated on **Figure 8**, a multi-phase alternative development, evaluation and selection process was employed to properly assess all alternatives considered for the proposed improvements of the SR 87 Connector within the project limits. Essentially, three (3) different phases comprised the alternative selection process for the proposed project as illustrated in the figure. Those alternative options found most feasible, which merited further development and evaluation, are shown in yellow in the various evaluation tables. A discussion of each of the three (3) different phases follows:

5.1 *Phase One: Conceptual Design Analysis*

5.1.1 No Build Alternative

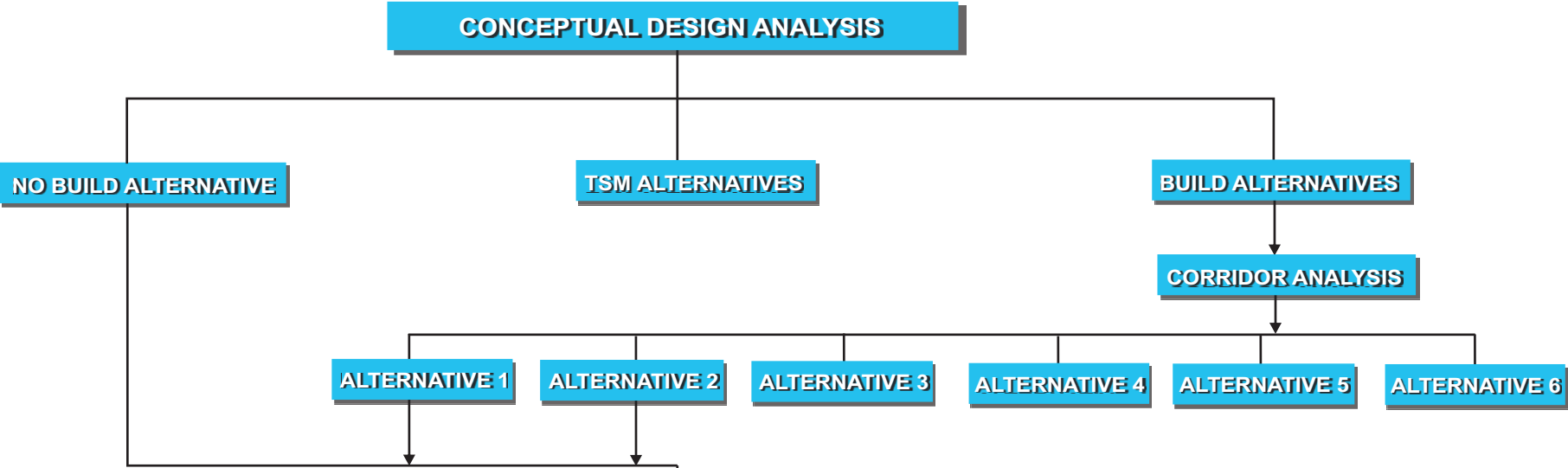
The “No Build” alternative is an alternative solution frequently used in PD&E studies that assumes the retainment of existing conditions. It is mostly used as a benchmark condition in order to compare the costs and benefits of implementing the proposed improvements to those incurred by continuing to use the existing facility. In this case, the “No Build” alternative would entail the retainage of the existing conditions within the project limits with its present geometric, operational and access deficiencies.

This alternative assumes that a connection between SR 87S and SR 87N will not be implemented. The existing facility (previously illustrated in **Figures 2 and 3**) not only lacks the necessary continuity to effectively serve the evacuation and linkage needs of the area it serves, but also is inadequate in terms of existing and future capacity. It is evident that because of the reasons previously discussed in this document, adoption of this alternative would not solve any of the existing needs associated with the project. However, the “No Build” alternative will be maintained as a viable option providing an effective yardstick or baseline condition by which other project alternatives will be compared throughout the project alternative selection process.

5.1.2 Transportation Systems Management (TSM) Alternatives

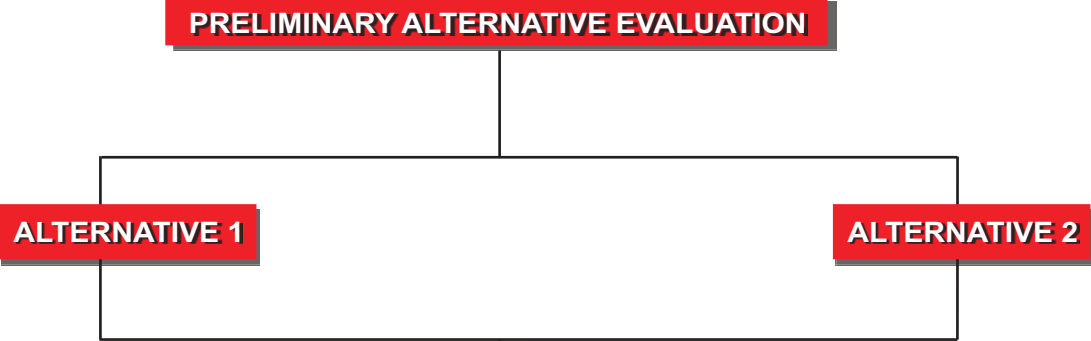
The Transportation Systems Management (TSM) alternatives are comprised of minor improvements options that are usually generated to alleviate specific traffic congestion/safety problems, or to get the maximum utilization out of the existing facility by improving operational efficiency. These alternatives do not serve as a benchmark function but rather they insure that a wide range of realistic alternatives

1



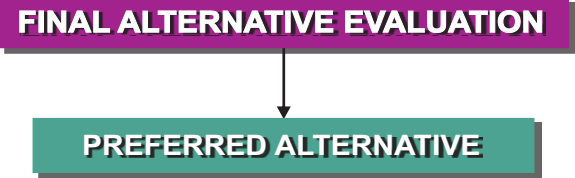
PHASE DESIGNATION	PURPOSE
CONCEPTUAL DESIGN ANALYSIS	CONCEPTUAL CONSIDERATION OF MINOR AND MAJOR OPTIONS INCLUDING THE ANALYSIS OF ALTERNATIVE CORRIDOR OPTIONS SEE PAGE 5.1

2



PRELIMINARY ALTERNATIVE EVALUATION	FURTHER REFINEMENT OF THE RESULTS OBTAINED IN THE PREVIOUS PHASE USING A NUMERICAL/DESCRIPTIVE MATRIX APPROACH SEE PAGE 5.7
------------------------------------	--

3



FINAL ALTERNATIVE EVALUATION	DETERMINATION OF OPTIMUM ALTERNATIVE BY USING THE ANALYTICAL HIERARCHICAL ANALYSIS (AHP) APPROACH SEE PAGE 5.9
------------------------------	---

1

LEGEND

PHASE DESIGNATION

ALTERNATIVES CONSIDERED

are considered by decision makers. The various TSM alternatives that were investigated include upgrading the existing facility by means of the following: 1) provision of physical and operational improvements to high accident spots or segments, 2) improving intersections and signalization and 3) improving signs, markings and delineation.

Table 5.1 provides a preliminary evaluation conducted for the various potential TSM strategies considered along the project limits. As indicated in the table, it is expected that these TSM improvements alone will not alleviate all of the existing corridor deficiencies nor would they suffice to meet current and future travel demand.

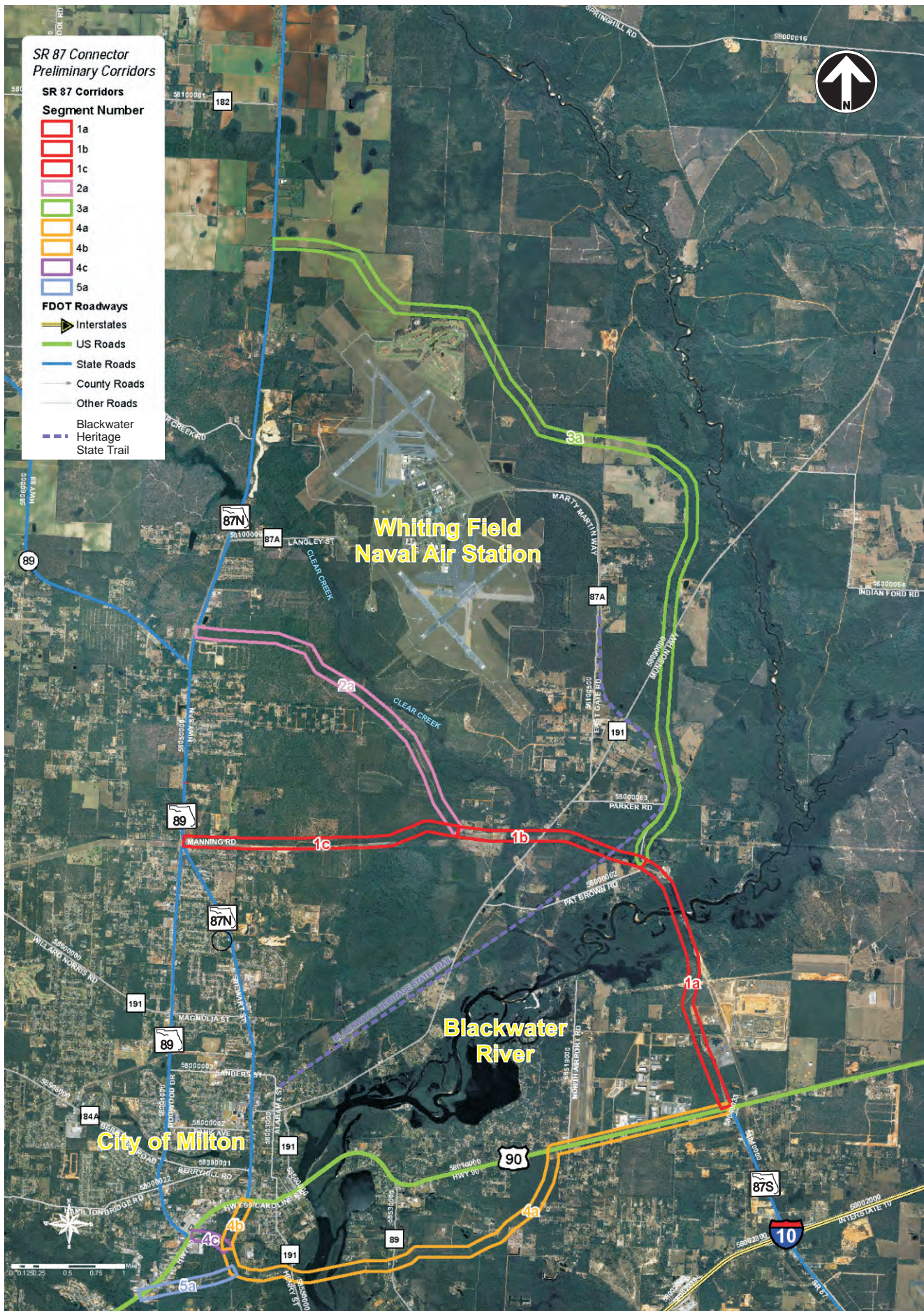
Table 5.1 Evaluation of TSM Alternatives

TSM ALTERNATIVES	CONSEQUENCES OF IMPLEMENTATION
Physical and operational improvements to high accident spots or segments and segments operating at LOS F	<ul style="list-style-type: none"> Most or all of the existing facility has a high number of accidents and therefore would require improvements throughout. There are three major existing segments along US 90 currently operating at LOS F (see section 3.1.3 of this report). Major reconstruction would be the only way to significantly improve safety due to the severity of deficiencies and congestion along the existing facilities. Reconstruction of the existing US 90 has been deemed unfeasible especially in the vicinity of Historic Downtown Milton due to severe and unavoidable impacts to important historic resources. An alternative corridor that avoids this historic district has been previously found to be the only way to reduce congestion along the existing US 90 corridor.
Improved intersections and signalization	<ul style="list-style-type: none"> Only slight improvements to existing problem intersections such as US90/SR 87S and US90/SR 87N. Will not alleviate any of the major existing deficiencies.
Improved signing, markings and delineation	<ul style="list-style-type: none"> Only slight improvements in guidance and possibly safety. Will not alleviate any of the major existing deficiencies.

In summary, even though some beneficial effects can be obtained through the use of low cost improvements, the overall capacity restriction of maintaining the existing roadway section precludes the attainment of any significant improvement in the overall project level of service. It is because of this fact that these alternatives were considered to have little value. Therefore, it is recommended that the TSM alternatives be rejected and only the major reconstruction options be considered for further study.

5.1.3 Build Alternatives

Based on the preceding analysis, it was determined that various major (build) alternatives would have to be developed within the study area. These major build options had to consider the various components of providing a new, more direct facility with emphasis on operational characteristics, roadway geometry, safety and aesthetics. As previously stated, a comprehensive corridor alternatives evaluation summary report was prepared for this project (see Appendix D). Six new corridors were identified and evaluated for improved mobility and safety. **Figure 9** illustrates the original six corridor and a brief description of each option follows:



ALTERNATIVES CONSIDERED

Corridor 1: As shown in **Figure 9**, this corridor extends north from the US 90/SR 87S intersection crossing the Blackwater River in the proximity of the existing eastern power easement crossings. Once across the river, it runs parallel or adjacent to the power easement, then connects with SR 87N just north of the convergence of SR 87N and SR 89, utilizing the Manning Road right-of-way. This corridor is approximately 6.5 miles in length.

Corridor 2: Much like Corridor 1, Corridor 2 also extends north from the US 90/SR 87S intersection crossing the Blackwater River in the proximity of the eastern most existing power easement crossing. Once across the river, it continues slightly north of Corridor 1, and runs adjacent to the Clear Creek environmental lands, where it proceeds west to connect with SR 87N in the proximity of the northern split of SR 87N and SR 89. This corridor is approximately 7.2 miles in length.

Corridor 3: Like Corridors 1 and 2, Corridor 3 also extends north from the US 90/SR 87S intersection crossing the Blackwater River in the proximity of the eastern most existing power easement crossing. Once across the Blackwater River, the corridor will proceed north on the east side of Whiting Field possibly utilizing portions of the Pat Brown Road right-of-way. Once north of Whiting Field, the corridor will traverse a narrow gap between the Nature Conservancy/Florida Forever Lands and Whiting Field and south of Southridge Road. This corridor is approximately 10.5 miles in length.

Corridors 4 - 6: These Corridors evaluate areas to the south of US 90, and will involve a new river crossing between Bagdad and Milton. The southern corridor will generally head west from SR 87S using a portion of the US 90 right-of-way that can accommodate widening, and reconnect with SR 87N at the US 90/SR 87N intersection. The western end of this corridor near SR 87N will utilize the right-of-way of the Blackwater Heritage Trail, and incorporate the trail into the roadway's cross section. This corridor may be approximately 5.6 to 6.5 miles in length depending on which option is selected. (The options for this corridor include Corridor 4, as well as the different terminus locations that make up Corridor 5 and Corridor 6.)

The initial corridor evaluation entailed the determination of the effectiveness of each corridor in attaining the following goals:

- 1) The stated project's purpose and need
- 2) Improving the existing and projected traffic conditions within the project area
- 3) Avoiding or minimizing adverse environmental impacts within the project area
- 4) Minimizing cost expenditures

Figure 10 illustrates the results of each evaluation component as well as the evaluation summary. It should be noted that each component is based on a ranking system. A rank of 1 reflects that the alternative is the best while the higher numbers are reflective of less effective performances. In terms of the evaluation summary, it is inherently clear that the least expensive alternative might provide the worst traffic service, or have the highest environmental impact. Therefore, how important is minimizing cost versus traffic service or environmental impacts?

Purpose and Need Rankings								
Corridor	Crit. 1 Connection between 87S and 87N	Crit. 2 Hurricane Evacuation	Crit. 3 Improve Mobility, consistent with L RTP	Crit. 4 Connectivity to WFNAS and Park	Crit. 5 Multi-Modalism	Crit. 6 Economic Dev.	Subtotal	Resulting Rank
1	1	3	1	3	2	1	11	1
2	2	2	2	2	3	2	13	3
3	3	1	3	1	1	3	12	2
4	5	7	5	7	5	5	34	5
5	6	7	6	7	6	6	38	6
6	4	7	4	7	4	4	30	4

Traffic Evaluation Rankings					
Corridor	Overall Regional Effect	Traffic Relief on US 90 and Downtown	Vehicle Miles Traveled (VMT)	Subtotal	Resulting Rank
1	1	4	3	8	1
2	2	5	2	9	3
3	3	6	1	10	4
4	5	2	4	11	5
5	6	3	4	13	6
6	4	1	4	9	3

Cost Rankings*						
Corridor	Right-of-way Costs	Construction Costs			Total Estimated Costs	Resulting Rank
		Roadway Cost	Low Level Bridge Cost	High Level Bridge Cost		
1	\$2.24	\$45.83	\$55.40	N.A.	\$103.47	4
2	\$2.74	\$57.88	\$55.40	N.A.	\$116.02	5
3	\$2.20	\$78.57	\$42.60	N.A.	\$123.37	6
4	\$4.09	\$42.75	\$41.00	\$59.8**	\$87.84/\$106.64	1
5	\$13.49	\$41.47	\$41.00	\$59.8	\$95.96/\$114.76	2
6	\$8.38	\$50.70	\$41.00	\$59.8	\$100.08/\$118.88	3

* Costs are in millions
** Blue text represents costs associated with high level bridge. High level bridges were not reviewed for northern corridors due to the USGS ruling the waters were not commercially navigable in the crossing area

Environmental Rankings						
Corridor Env. Criteria	Corridor Scoring					
	1	2	3	4	5	6
Wetlands	3	2	1	5	4	6
FNAI	3	2	1	6	4	5
Habitat	6	4	3	2	1	5
Floodplain	2	3	1	5	4	6
T/E Species*	1	1	1	1	1	6
OFW**	4	4	4	1	1	1
Black Bear	0	0	0	0	0	0
FFWCC 1-5	1	2	6	4	3	5
FFWCC 6-10**	4	4	4	1	1	1
Pristine Lands	4	5	6	2	1	3
FEMA	4	5	3	2	1	6
Noise	4	6	5	2	1	3
CRAS	1	3	1	4	4	6
Social	1	3	2	5	4	6
Total Score	38	44	38	40	30	59
Resulting Rank	3	5	3	4	1	6

* Only Corridor 6 had impacts
** Tie between the Northern or Southern Corridors

Final Corridor Evaluation Summary									
40% Relative Weight									
0.40 Resulting Score									
Corridor	Evaluation Parameter	Purpose and Need	40%	Traffic	20%	Cost	10%	Environmental	30%
1	1	0.40	1	0.20	4	0.40	3	0.90	1 (1.90)
2	3	1.20	3	0.60	5	0.50	5	1.50	3 (3.80)
3	2	0.80	4	0.80	6	0.60	3	0.90	2 (3.10)
4	5	2.00	5	1.00	1	0.10	4	1.20	6 (4.30)
5	6	2.40	6	1.20	2	0.20	1	0.30	4 (4.10)
6	4	1.60	3	0.60	3	0.30	6	1.80	6 (4.30)

ALTERNATIVES CONSIDERED

In order to quantify this dilemma, members of the consultant's team, reflecting a broad range of professional backgrounds, were asked to provide their perceived degree of importance (weights) for each of the four evaluation parameters (e.g. – purpose and need, compatibility, traffic service, environmental impacts and cost). The resulting relative weights shown in the final evaluation summary of **Figure 10** serve as an additional aid in evaluation, and are thus reflective of the average of the individual weighting results submitted by the team. Compliance with the project's Purpose and Need was judged to be the most important parameter with an overall weight of 40% (0.40), while cost was the least important at 10% (.10). In order to determine the final scoring, each individual rank was multiplied by the assigned parameter weight and the resulting score added for all evaluation parameters. The corridors with the lowest resulting total scores are the more successful options. For example, as previously shown under the "Purpose and Need" comparison, Corridor 1 was the most successful, so this score was multiplied by the relative weight and a resulting score was obtained ($1 \times 0.4 = 0.4$). According to the results shown on the table, Corridors 1, 2, and 3 were the top three choices. It should be noted that corridors 4, 5, and 6 traverse protected lands owned by the North West Florida Water Management District (NFWFMD). Additional coordination was conducted with the NFWFMD to explore avoidance and mitigation issues concerning these lands. Several design options were explored (e.g. – bridging the area, etc.) but the high cost ramifications were such that these options proved to be unfeasible. In light of this fact, Corridors 4, 5, and 6 were deemed fatally flawed and unfeasible. In addition, further coordination with FHWA has resulted in the removal of Corridor 3 from further consideration. This action is due to the fact that this corridor traverses lands recently purchased by the Department of Environmental Protection (DEP) using Florida Forever funds. This purchase not only blocked passage of Corridor 3 but also blocked any other nearby potential corridors that might have been explored.

In summary, only Corridors 1 and 2 remain as viable build options and subject to additional investigation.

5.2 Phase Two: Preliminary Alternative Evaluation

Table 5-2 is a numerical/descriptive matrix, which illustrates, describes and evaluates the features of the remaining alternatives under consideration. The evaluation used involved the generation of a weighting scheme for each of the evaluation parameters. Each criteria was separated into sub-criteria to be evaluated. Fourteen (14) different sub-criteria including engineering, socio-economic, environmental and cost factors were used. Each sub-criteria weight was assigned a value ranging from 4 to 13 depending on its degree of importance. These parameters weightings were developed from the average of individual weighting sets prepared by members of the consultant's team reflecting a broad range of professional backgrounds. In addition, the alternative performance with respect to each parameter was compared using two criteria; 1) the overall effect on the specified parameter and/or 2) the relative effect between the competing alternatives.

ALTERNATIVES CONSIDERED

The overall effect received one of the five judgmental values ($++ = 1.00$, $+ = 0.80$, $o = 0.60$, $- = 0.40$, $-- = 0.20$). If, however any of the alternatives had an overall negative effect, then the worst alternative received a ($--$) and the relatively better alternative received a higher score ($-$). If any two values were approximately equal then they both received the relatively lowest score. If the alternatives had an overall positive effect then the best alternative received a ($++$) and the relatively worse alternative received a lower score ($+$). A common value, therefore, signifies an equal overall and relative effect.

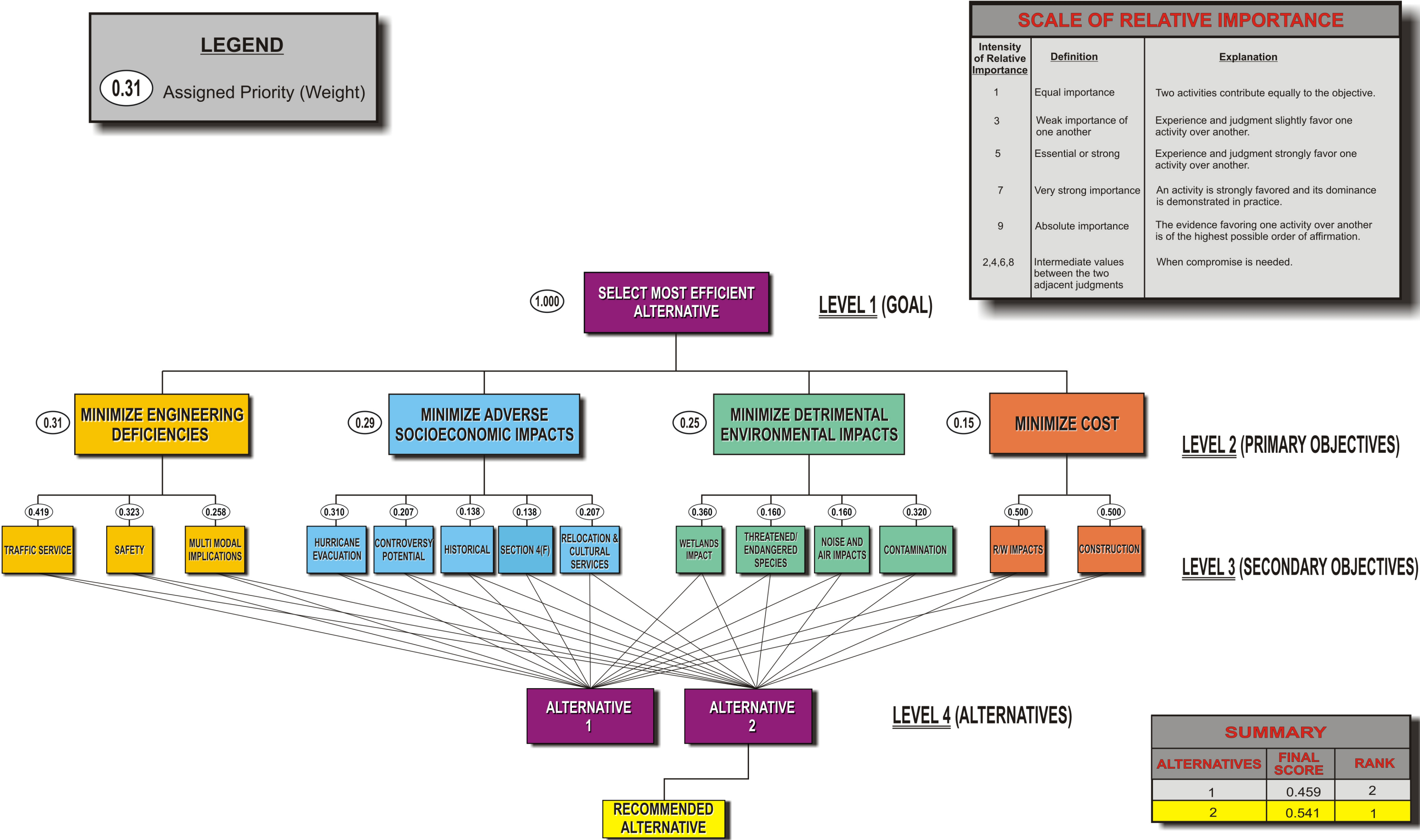
This evaluation involves a combination of both qualitative and quantitative values resulting in an overall score. Each score indicated on the table is the result of multiplying the judgmental analysis rating times the relative weight for that criteria. For example, Alternative 2 under the parameter "Wetland Impacts" was given a designation of "-" (judgmental value = "0.40") since it has substantial wetland impacts and crosses Outstanding Florida Waters (OFW) and special flood zones. This judgmental value of 0.4 was then multiplied by the relative weight of the parameter (9) resulting in an overall score of 3.6.

Those alternative options found most feasible, which merited further development and evaluation, are shown in yellow. The results obtained from Table 5.2 indicate that alternative 2 obtained the highest total score and, as expected, the No Build option was the least attractive option. It should be noted that the objective of this phase was not necessarily to determine which option was the best but rather to identify which alternative(s) were clearly inferior so that they can be eliminated before even more stringent evaluation criteria and procedures were used during the next evaluation phase.

5.3 Phase Three: Final Alternative Evaluation

Even though Table 5-2 indicates that alternative 2 is the highest ranked option, it is important to note that these results should be verified through the use of a more stringent evaluation technique. The Analytical Hierarchical Process (AHP) is a multi-criteria decision method based on pair-wise comparisons that will be used for this purpose. Pair-wise comparisons have been technically proven to be more reliable in eliciting human judgment than directly assigning weights. The AHP method is based on the breakdown of each problem into a system of stratified levels of hierarchies where each level consists of criteria or objectives to be compared. The relative importance or priority for all the criteria in a given level is then established through a sequence of pair-wise comparisons, which will ultimately lead to the derivation of priorities (i.e., weights or importance) for each criterion as well as the determination of the recommended roadway alternative. A complete description of the project evaluation criteria and AHP methodology as well as the AHP computer run results are included in Appendix E.

The results from the final alternative evaluation confirm that alternative 2 is the top ranked alternative (see **Figure 11**). The goal of this procedure is to identify the most efficient (best) alternative thus the goal has an assigned priority of 1.000 (100%) (shown on **Figure 11**). The priorities (weights) assigned to the four primary objectives are reflective of the average of individual weighting sets prepared by the consultants' team

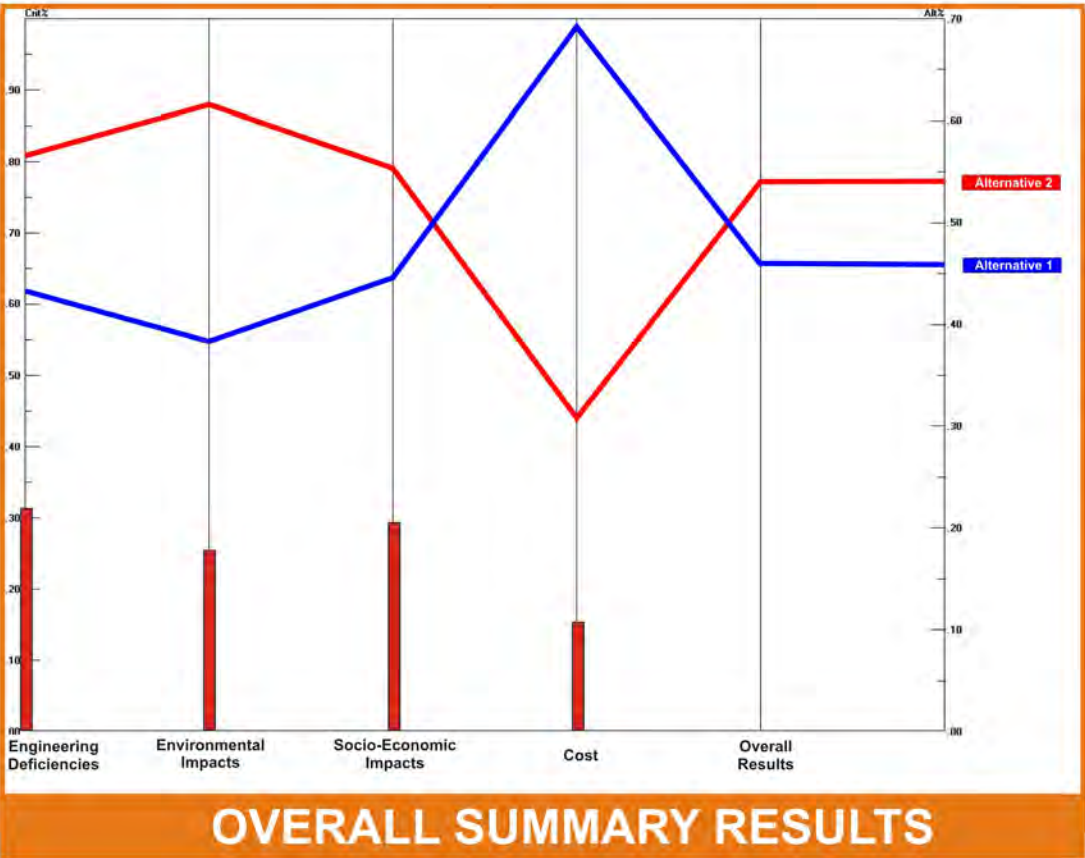
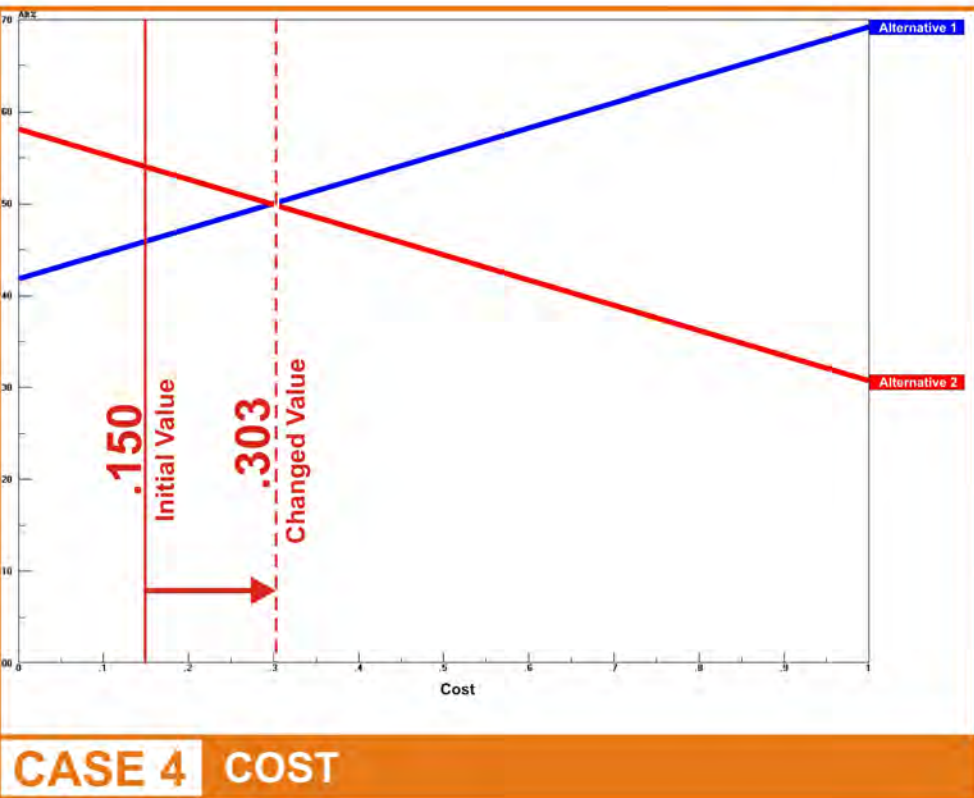
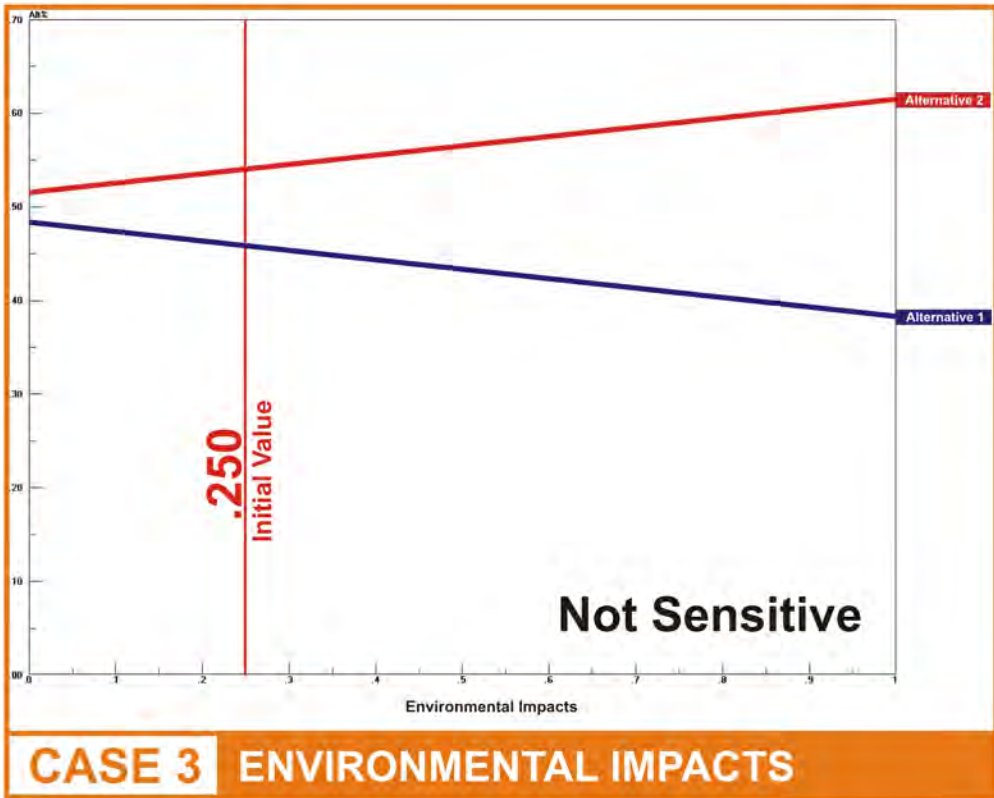
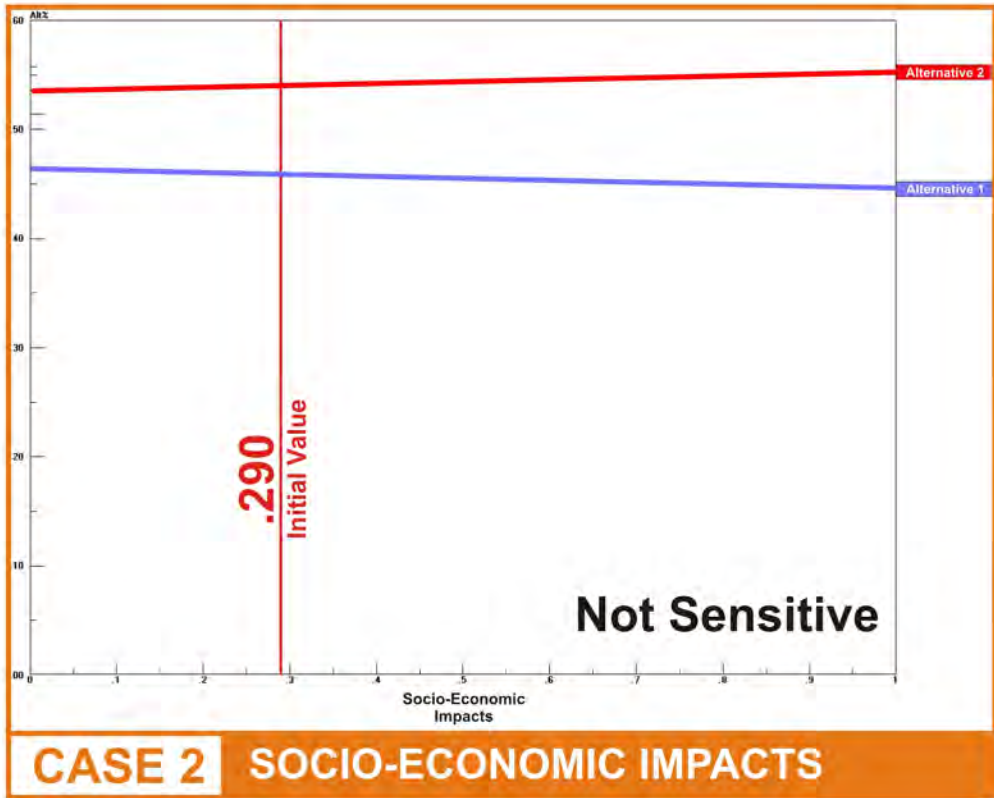
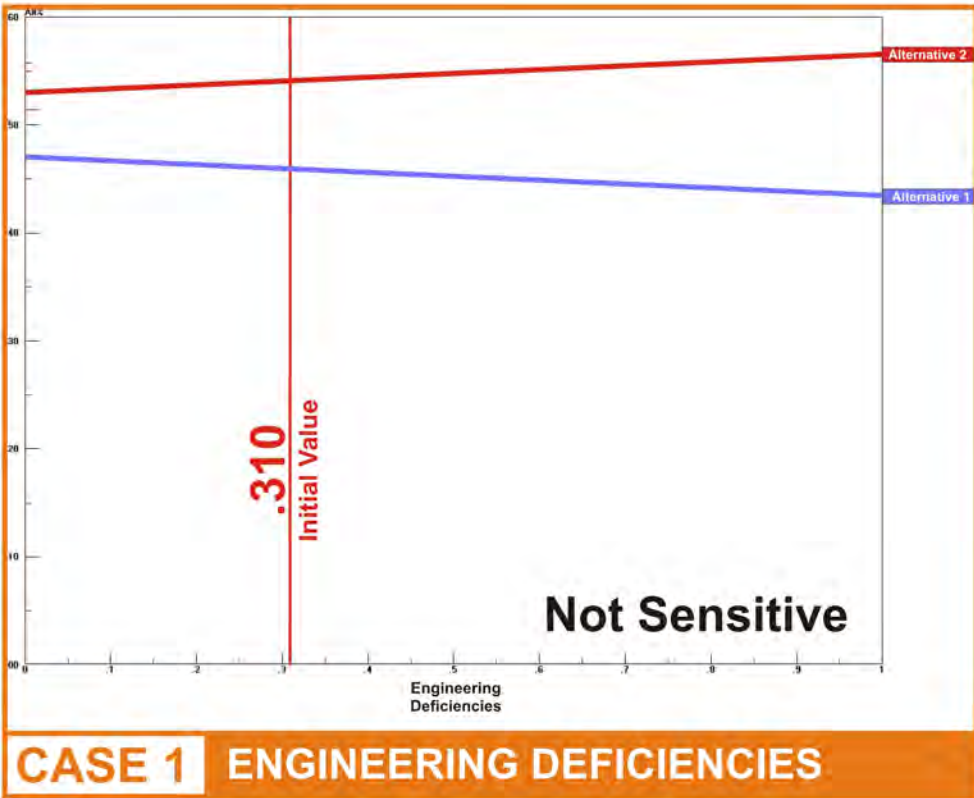


ALTERNATIVES CONSIDERED

and they match the values shown in yellow at the top of Table 5-2. The summation of the individual primary objectives equals 1.00. The weights assigned to the secondary objectives represent the relative importance of the objective of minimizing deficiencies/impacts within each specified primary objective. Although the total summation of each group should add to 1.00 it might not, due to rounding. It should be noted that these weights are the result of normalizing the values established during the previous evaluation phase and shown as "subcriteria weights" in blue at the top of Table 5-2. A detailed explanation of the resulting score is shown in **Appendix E**.

In order to further reduce potential individual bias and investigate any sensitive criterion that could yield a different alternative ranking, a thorough sensitivity analysis of the AHP evaluation results was conducted. This feature investigates the effect on the ranking of the top priority alternative if the criteria take on other possible values.

Figure 12 illustrates distinct sensitivity analyses or "cases" which explore potential changes in the engineering deficiencies parameter (case 1), socio-economic impacts parameter (case 2), environmental impacts parameters (case 3) and cost parameter (case 4). The solid red vertical line shown for each case indicates the original assigned weight and the arrow (pointing to the dashed line), the necessary increase (arrow pointing to the right) or reduction (arrow pointing to the left) in the original assigned weight that would be required for another alternative (2) to overtake the superior alternative (1). As illustrated on the figure, under cases 1, 2 and 3 Alternative 2 maintains its relative superiority regardless of a change in criteria weights since the lines representing the alternatives never meet. In terms of case 4 (cost) the original assigned weight was 0.150. According to the figure, the weight would need to be increased to 0.303 for Alternative 1 to overtake Alternative 2. This drastic change is considered unreasonable since it will also significantly lower the relative importance of the other evaluation components (see table on the lower right hand side of the figure). For example, under this scenario, the weight for the engineering component would be reduced to 0.254 from its original weight of .310. Because Alternative 2 is superior to Alternative 1 in each of the primary criteria (mainly due to the fact that it has less relocation and noise and impacts), Alternative 2 is the recommended alternative.



Case No.		1	2	3	4
Sensitive Criteria		Engineering Deficiencies	Socio-Economic	Environmental Impacts	Cost
Initial Value		0.310	0.290	0.250	0.150
Changed Value		—	—	—	0.303
Resulting Value of Criteria	Engineering Deficiencies		—	—	0.254
	Socio-Economic	—		—	0.238
	Environmental Impacts	—	—		0.205
	Cost	—	—	—	



6. RECOMMENDED ALTERNATIVE

The results of the Alternative Selection Process indicated that Alternative 2 is the recommended option. The following sections describe and highlight the different design elements associated with the recommended alternative. **Figure 13** illustrates some of the prevalent features of the recommended option. For more details please see the Concept Plans in **Section 7** of this report.

6.1 Design Exceptions/Variances

There are no design exceptions anticipated for this project. Design variations anticipated for Alternative 2 are as follow:

- Access Management:
 - Design variations for median opening spacing are anticipated to be required between Opportunity Drive and Shooting Range Drive, at Bobby Brown Road near the beginning project limit.
 - Design variations for connection spacing are anticipated to be required for the driveway turnouts just north of US 90.

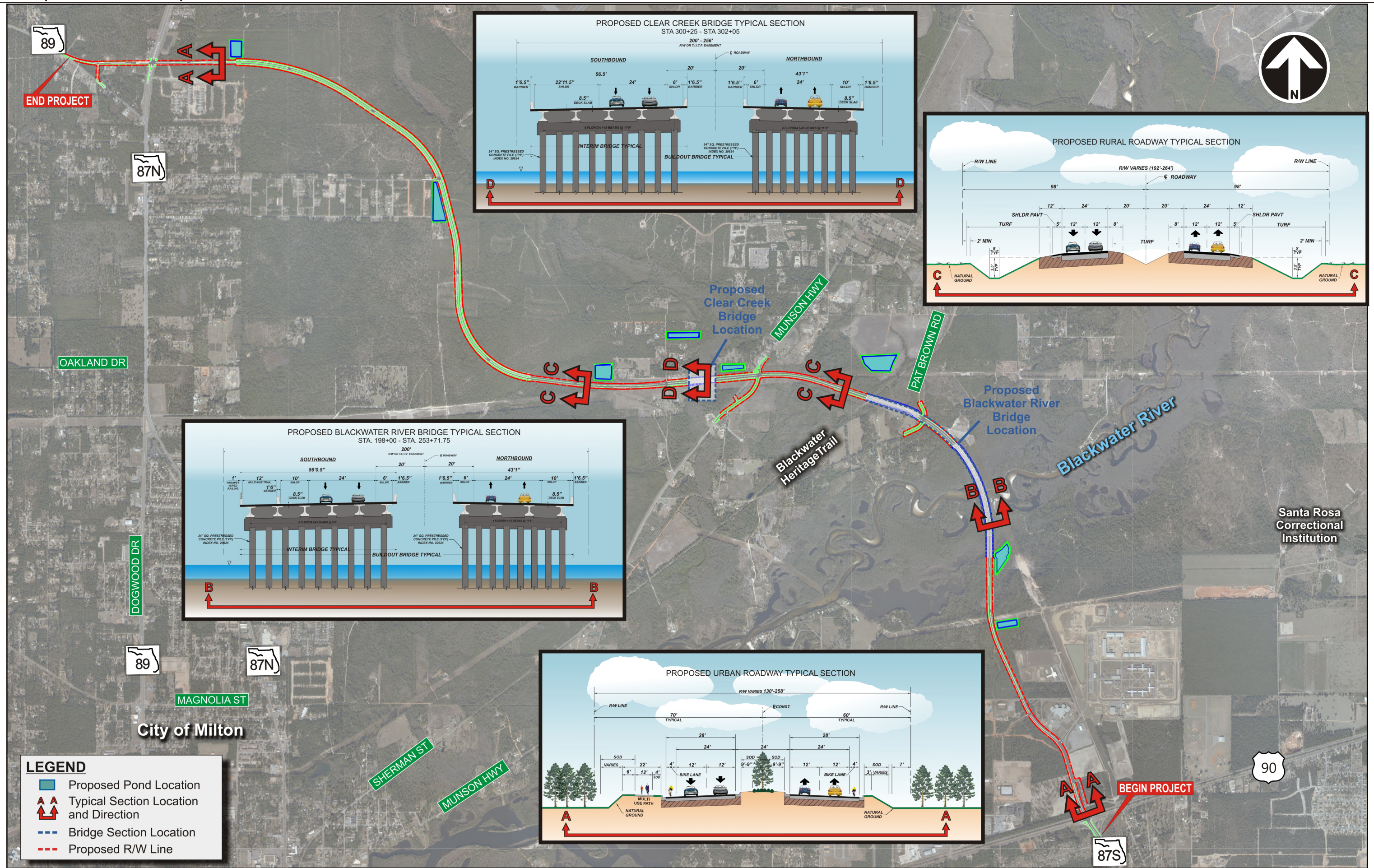
6.2 Horizontal Alignment

There are a total of thirteen curves designed along the proposed alternative alignment (see Concept Plans, Section 7). The locations of the proposed horizontal curves, as well as the curve information are illustrated on **Figure 13**.

6.3 Proposed Typical Sections

Alternative 2 is proposed as a four lane, restricted access, divided highway. It is the intent for the project to initially build an interim two lane facility and as demand increases, the road would be expanded to four lanes to ultimately match the four lane section at the existing SR 87S and SR 87N. The future four-laning of the Connector is pursuant to recent legislation (HB 1359-SB 7121) which stipulates that “*the adopted level of service for out-of-county hurricane evacuation is maintained for a Category 5 storm event as measured on the Saffir-Simpson Scale*”. Additionally, providing possibility for future capacity improvements complies with Florida Administrative Code 9J-5.012(3)(b)(6) and 9J-5.012(3)(b)(7), Florida Administrative Code, that states the level of service shall be no greater than 16 hours for a Category 5 storm event. It should be noted however that sufficient R/W will be acquired in the first phase of the project for the future four-laning.

As was previously mentioned, the SR 87 Connector will match the existing four lane urban typical sections at each of the project termini (SR 87S and SR 87N). An urban section will minimize right-of-way and socio-economic impacts as well as potential impacts to natural lands. As the connector enters into less constrained areas north of the Blackwater River, a rural typical section is being recommended. This will allow for higher speeds and is more appropriate for the area’s characteristics. The proposed typical section package can be found in Appendix F and **Figure 13** shows location of all proposed typical sections.



RECOMMENDED ALTERNATIVE

Interim Typical Sections

The interim urban typical section (see **Figure 14**) consists of two 12 foot travel lanes, crowned, with type F curb and gutter and four foot shoulder/bike lanes on each side. On the west/south sides a 12 foot multi-use path is also provided. This typical section runs from Station 100+00 to 155+00, and from Station 435+25 to 505+95 (the two-lane interim typical section will run from Station 155+00-253+71.75). It should be noted that the two-lane interim typical section also includes Blackwater River Bridge.

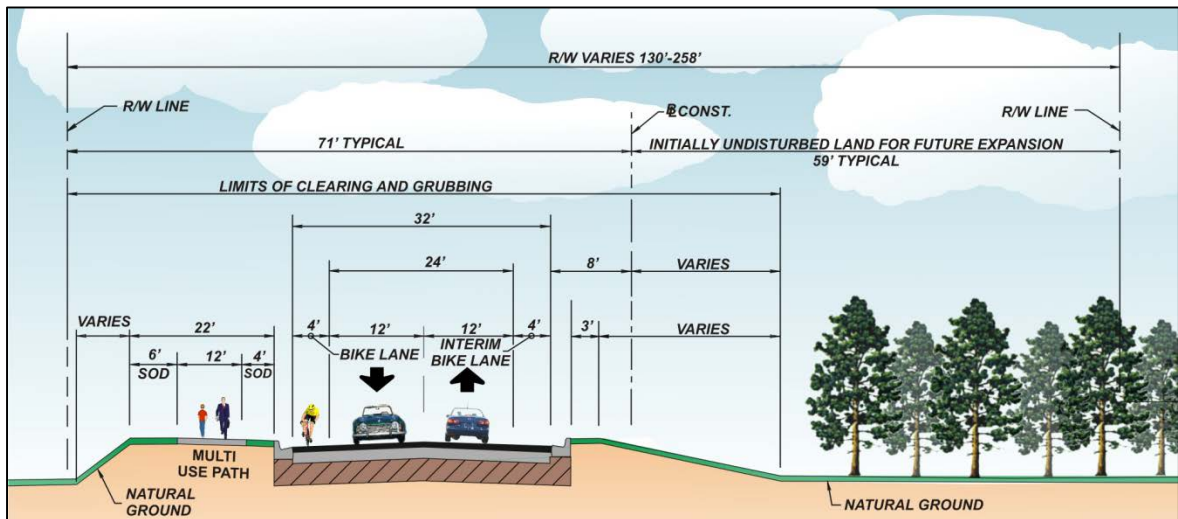


Figure 14: Proposed Interim Urban Typical Section

The interim rural typical section (see **Figure 15**) consists of two 12 foot travel lanes, crowned, 12 foot and 10 foot outside (5 foot paved) shoulders. The interim rural typical section also features drainage swales along each side of the roadway. The interim rural typical section runs from Station 253+71.75 to 488+00. This typical section also includes Clear Creek Bridge.

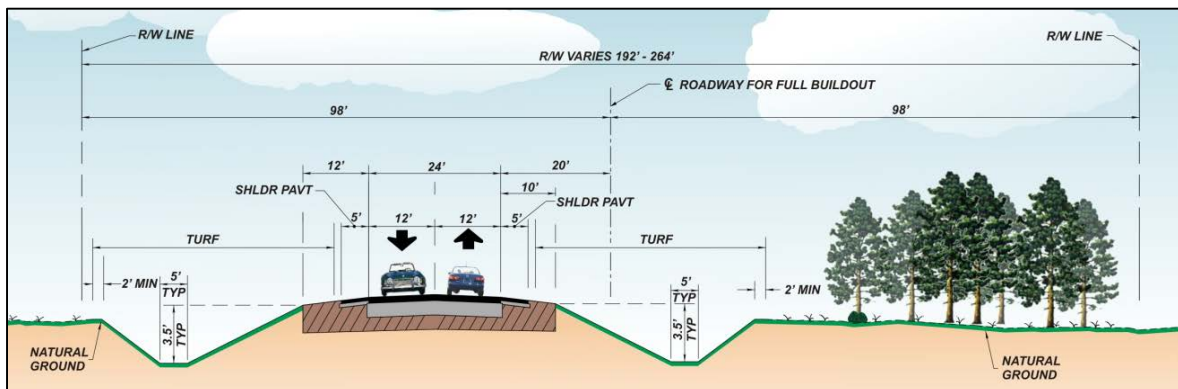


Figure 15: Proposed Interim Rural Typical Section

RECOMMENDED ALTERNATIVE

Build-out Typical Sections

The interim construction will be utilized as the south/east bound lanes for the build-out scenarios. The crown on the two interim lanes for both the urban and the rural will be overbuilt to provide a single outside slope for drainage.

In the proposed (build-out) urban section (see **Figure 16**), the four foot inside shoulder will be eliminated with the overbuild. A 24 foot median will be provided for landscaping and turn-bays. Two additional north/west bound travel lanes and a four foot outside shoulder/bicycle lane with Type F curb and gutter will be constructed. The proposed build-out urban typical section will run from Station 100+00 to 253+71.75 and from Station 483+25 to 505+95.

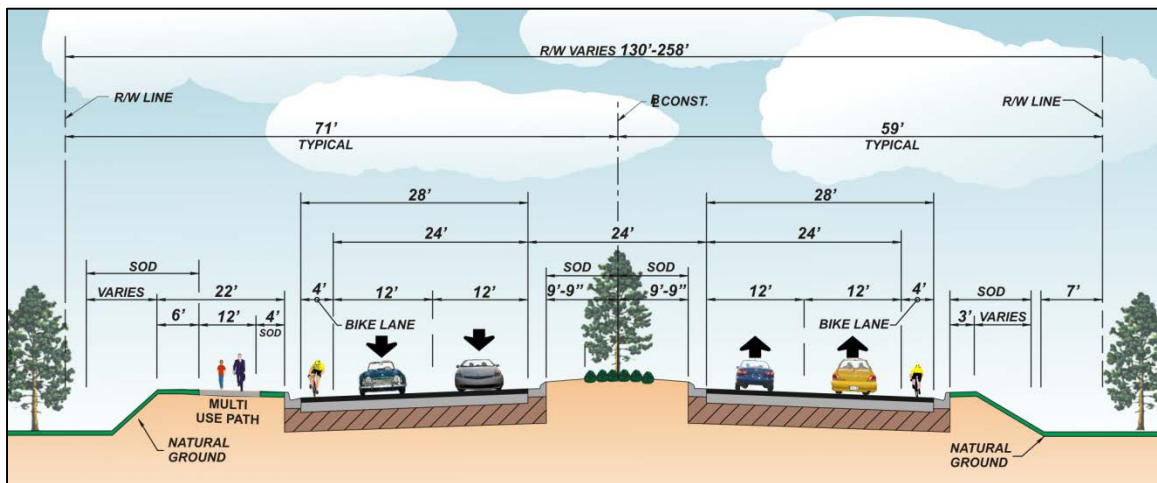


Figure 16: Proposed Urban Typical Section

In the proposed (build-out) rural section (see **Figure 17**), the 10 foot inside shoulder will be replaced with an 8 foot shoulder. Two additional north/west bound travel lanes and a 12 foot outside (5 foot paved) shoulder will also be provided. The proposed build-out rural typical section will run from Station 253+71.75 to 483+25. This typical section also includes Clear Creek Bridge.

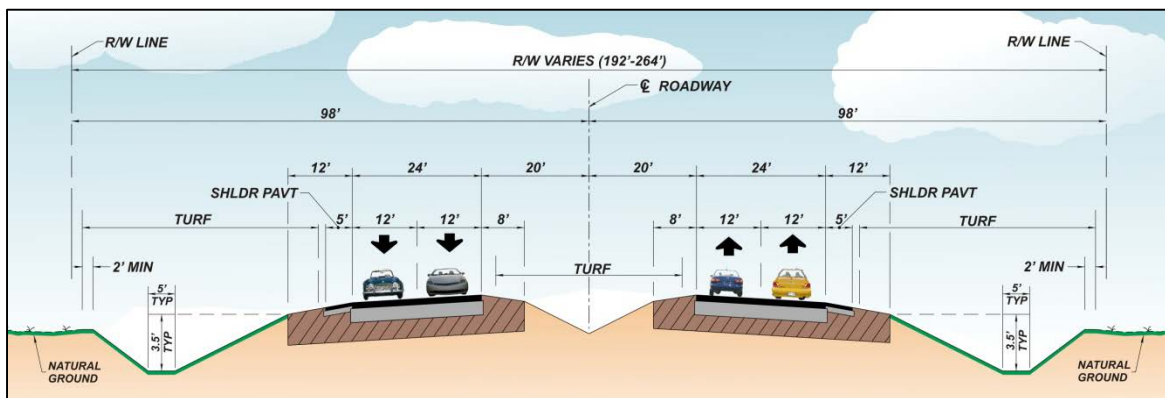


Figure 17: Proposed Rural Typical Section

6.4 Access Management

The proposed access management class for the new SR 87 Connector is Access Class 3 to comply with FDOT's policy to assign an access classification of 2 or 3 to highways on the Strategic Intermodal System (SIS) that are not freeways in order to preserve the safety and efficiency of the highways. Access Class 3 allows for full median openings to be constructed at each major connection along the SR 87 Connector. In addition, the proposed classification will also match the existing access management classifications on SR 87S and SR 87N.

Access Class 3:

"These facilities are controlled access highways where direct access to abutting land will be controlled to maximize the operation of the through movement. This class will be used where existing land use and roadway sections have not completely built out to the maximum land use or roadway capacity or where the probability of significant land use change in the near future is high. These highways will be distinguished by existing or planned restrictive medians and maximum distance between traffic signals and driveway connections. Local land use planning, zoning and subdivision regulations should be such to support the restrictive spacing of this designation."

As was previously mentioned, the SR 87 Connector is proposed as a four lane, restricted access, divided highway. Some intersections will be provided along the corridor. **Table 6-2** provides the proposed access management plan for the recommended alternative. It should be noted that the interim roadway (two lane highway) will allow for access to all side streets and driveway connections, and will be classified as Access Class 4 until the full build out is constructed. **Table 6-2** includes median opening location, type and median opening spacing. For more details, see concept plans in Section 7 of this report.

Table 6-2 Proposed Access Management Plan

Station (Middle of Opening)	Opening Type	Description	Spacing To Middle of Next Opening			
			Behind (ft)	Type	Ahead (ft)	Type
111+86.22	Full	US 90	-	-	1114	Full
123+00.00	Full	Bobby Brown Rd	1114	Full	1141	Full
134+41.14	Full	East Milton Rd	1141	Full	1158	Directional
145+99.33	Directional	Opportunity Dr	1158	Full	447	Directional
150+46.56	Directional	Shooting Range	447	Directional	2453	Full
175+00	Full	Median Opening	2453	Directional	8297	Full
257+97	Full	Median Opening	8297	Full	2640	Full
284+51.15	Full	Munson Hwy	2640	Full	2569	Full
310+78.08	Full	Winston Brown Rd	2569	Full	2994	Full
340+60.92	Full	Median Opening	2994	Full	3000	Full
361+36.35	Full	Median Opening	2680	Full	2680	Full
388+25.91	Full	Median Opening	2680	Full	2685	Full
415+00.00	Full	Trailride North Rd	2685	Full	2678	Full
441+78.36	Full	Median Opening	2678	Full	2678	Full



RECOMMENDED ALTERNATIVE

Table 6-2 Proposed Access Management Plan

Station (Middle of Opening)	Opening Type	Description	Spacing To Middle of Next Opening			
			Behind (ft)	Type	Ahead (ft)	Type
468+06.36	Full	Median Opening	2678	Full	2678	Full
496+29.70	Full	Season Dr	2678	Full	1107	Full
506+12.01	Full	SR 87	1107	Full	-	-

6.5 Utilities and Railroad

To determine the extent of utility adjustments required by project improvements, local utility companies that may have facilities within the project limits were contacted and requested to submit the location of their existing and planned facilities. **Table 6-3** presents the preliminary utility conflict matrix. As the study progresses, continued coordination will take place with all pertinent utility companies. It should be noted that this information is not to be used for construction activities. Please contact each utility company prior to digging.

The proposed alternative will transverse a Gulf Power easement in three locations. As a result some transmission poles are expected to be relocated. Coordination with Gulf Power is on-going.

Additionally, the SR 87 Connector will cross the CSX Railroad at approximately STA 112+00. This is an existing 3 lane crossing that will be widened to provide two northbound lanes and 3 southbound lanes at the intersection of US 90 (see sheet 10 of Concept Plans, Section 7). The southbound crossing provides one left turn, one thru lane and one shared thru-right turn lane. Coordination with CSX Railroad is on-going.

It should also be noted that Santa Rosa County is currently planning to build the East Milton Wastewater Treatment Plant within the project area northwest of the Santa Rosa Correctional Institute. In light of this, the proposed alignment was adjusted in order to avoid impacts to the proposed site (see **Appendix G**).

6.6 Drainage

The proposed drainage system for this project will consist of closed stormwater collection systems in the urban typical section and open ditches in the rural typical section, which will convey runoff to stormwater ponds for sediment control and water quality treatment prior to discharging into adjacent wetlands or natural discharge points. Both wet and dry ponds will be utilized, depending on the existing groundwater elevation and soil types.

The drainage features for this project shall be designed in accordance with the Florida Department of Transportation's drainage standards and procedures. This will ensure that all treatment requirements are met and impacts to floodplains and flood heights are avoided to the fullest extent possible.

RECOMMENDED ALTERNATIVE

Given that both the proposed bridges over Clear Creek and Blackwater River will be constructed on sites that do not currently have any structures, impacts on the wetlands and forested areas will occur. Mitigation will be required to account for these impacts. Remediation techniques that have been outlined for possible use for these bridges include a mitigation bank credit purchase, or a Senate Bill Mitigation; however, the form of mitigation will be determined during permitting by the Interagency Review Team (IRT).

Table 6-3 Preliminary Utility Conflict Matrix

Utility Owner	Contact	Utility Information	Notes/Discussion
AT&T Communications	Steve Hamer	6 - 1.9 inch HDPE Ducts on north side of US 90	Runs under existing East Milton Road. May need adjustment due to new strain pole/ mast arm.
AT&T Florida			<i>Pending additional coordination</i>
City of Milton	Joe Cook	4" H.P. Gas and 8" FM along East Milton Rd 10" Gravity Sewer perpendicular near shooting range 6" WM and 10" FM on Munson Hwy 6" WM on Winston Brown 2" HP Gas on SR 87N/ SR 89N	Gas and FM may be impacted due to widening along East Milton Rd. 10" gravity sewer, 6" WM, 10" FM and 6" WM all are perpendicular to alignment, may be affected. Gas on SR 87N may be affected due to widening on Oakland drive west of SR 87N.
CSX Railroad	Hal Gibson 904.359.1048	Railroad along northside of US 90	<i>Pending additional coordination</i>
East Milton Water System, Inc.	Dink Helms 850.623.8750	12" Water along east side of East Milton Road 12" Water along west side of SR 87S 10" Water along West side of Judicial Blvd 10" Water along south side of Opportunity Drive	12" water and 10" water along East Milton Rd, Judicial Blvd and Opportunity Drive may be affected due to widening.
Gulf Power Distribution	Chad Swails 850.429.2446	East Milton Road, Judicial Drive, Munson Highway, Oakland Drive east of SR 89N, Season Drive (buried), SR 87N (to residences), SR 89N (to residences)	<ul style="list-style-type: none"> East Milton Road and Judicial Drive approximately 20 poles impacted Oakland Drive East approximately 20 poles impacted SR 87N four poles impacted SR 89N 6 poles impacted
Gulf Power Transmission	Tracy Judson 850.444.6085	2- 115kV lines in east/west easement north of prison 1- 115kV and 1- 230kV in easement crossing Blackwater River 1- 230 kV in easement north of Salamander Habitat	<ul style="list-style-type: none"> 1 structure to be adjusted in easement N of prison 2 structures (1- 115kV, 1-230kV) adjusted at Pat Brown Rd 1 structure (230kV) adjusted at easement triangle 7500' of 115kV adjusted 3000' of 230kV adjusted 2 structures (230kV & 46kV) adjusted at Munson Hwy
Level 3 Communications	Kelli Whitehead 720.888.4988	96 fiber, 2 - 1.5" Orange and 1-1.5" Black with Orange stripe HDPE along north side of US 90 between SR 1 and US 90	Bored under East Milton Road, widening may not affect. 10" Steel pipe for 895'.
Mediacom	Eddie Arnold 850.934.2560	Cable TV, buried & overhead, located throughout residential areas	<i>Pending additional coordination</i>
Okaloosa Gas	Essa Rhebi	8" and 12" Steel transmission pipe lines along north side of US 90	Runs under existing East Milton Road. May need adjustment
Point Baker Water System, Inc.	Tony Mathis 850.623.4545	Oakland Drive (east of SR 87N) - 2" WM and service laterals approximately 3.5' deep SR 87N - 8" WM (east side), 6" WM (west side) approximately 7' deep Harvest Point - 6" WM on south side SR 89N - 6" WM on south side	Water mains on Oakland Drive and Harvest Point may be affected. Those on SR 87N and SR 89N should not be affected.

RECOMMENDED ALTERNATIVE

Qwest	Jerry NeSmith 918.640.5964	Along CSX Railroad, 1 1/4" Green, 1 1/4" Blue, 1 1/4" Black, and 2" Orange HDPE	Directional bored under East Milton Road approximately 70' from west to 80' from east side
Southern Light, LLC	DJ McAuley	No facilities within project limits	<i>Pending additional coordination</i>
Sprint Nextel	Steve Thompson 678.852.2726	Fiber Optic along CSX Railroad, 40' south of C/L of railroad, 36' north of SR1	No impacts anticipated
Verizon (MCI)	Charles Brunick 850.265.3652	12ct Fiber Optic in the median of US 90	Project will not affect fiber located in median

6.6.1 Floodplain Encroachment

The majority of the proposed alternative is outside of the 100-year flood zone (Zone X), except at two locations; 1) surrounding the Blackwater River and 2) surrounding Clear Creek. The Blackwater River is a “Floodway Area” in Zone AE and “Special Flood Hazard Areas Subject to Inundation by the 1% Annual Change Flood” in Zone AE. The base flood elevation is 19 feet on the south end of the proposed Blackwater River Bridge and is 20 feet on the north end. Clear Creek is in “Special Flood Hazard Areas Subject to Inundation by the 1% Annual Change Flood” in Zone AE and has a base flow elevation of 18 feet. Clear Creek is a tributary to Blackwater River; connecting downstream of the proposed Blackwater River Bridge.

The project has significant changes in elevation near the Blackwater River and “rolling hills” in the agricultural areas in the northern portion of the project. The majority of the study area has an elevation of 70 feet or greater and is outside flood zones associated with risk from the 500 year event. Within the limits of the Blackwater River floodplain, the existing ground elevations are between -5.3 feet and 51.8 feet, and the proposed ground/bridge deck elevations are between 30.7 feet and 64.0 feet. The existing ground elevations within the Clear Creek floodplain are from 5.7 feet to 19.9 feet, and the proposed ground/bridge deck elevations are from 23.2 feet to 34.2 feet. Throughout the remainder of the project (in Flood Zone X), existing ground elevations range from 10.0 feet to 179.0 feet, and the proposed roadway profile grade elevations are 19.2 feet to 179.0 feet.

Hydraulic evaluations and risk evaluations were performed for this project to show that there are no significant adverse impacts on floodplains and there are minimal encroachments. Hydraulic evaluations were modeled for the 50, 100 and 500 year storm events at the bridge locations. This project was determined to be in the category of “minimal encroachments” in regards to the type of encroachment on base floodplain involvement. The recommended alternatives generate minimal rise in base flood elevations and do not increase floodplain limits.

Flood heights associated with the bridges is minimal due to the fact that the floodplain has transverse encroachments and the Blackwater River Bridge spans the entire floodway. Both bridges have up to 30 feet of vertical clearance from the natural ground elevations; allowing for high volumes of water to pass under the proposed bridges. Longitudinal encroachments were avoided by configuring alignments perpendicular to the stream/river crossings. The project is not considered to have significant

RECOMMENDED ALTERNATIVE

encroachments because the encroachments do not have a high probability of loss of human life, will not likely cause future damage that could be substantial in cost or extent, and will not cause adverse impact on natural and beneficial floodplain values.

Mitigation is required for impacts to the floodplain. Floodplain compensation will be provided by excavating (dredging) a portion of “uplands” just upstream of the proposed Blackwater River Bridge. This area will serve as a locale for additional flooding along the river bank and will assist with rise in base flood elevations at the proposed highway facility. Flood maps shall be revised to include the floodplain compensation area as part of the base flood. It should be noted that FEMA is currently in the process of updating flood maps in the study area, and preliminary design documents may require adjustment to account for changes to the floodplain and floodway, if any.

Floodplain Statement:

This project is on a new alignment with potential significant changes in the 100 year flood elevations. The following statement is taken from the LHR which summarizes the overall encroachments that this project will have onto the floodplain.

“The construction of the drainage structure(s) proposed for this project will cause changes in flood state and flood limits. These changes will not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant changes in flood risk or damage. These changes have been reviewed by the appropriate regulatory authorities who have concurred with the determination that there will be no significant impacts. There will not be significant change in the potential for interruption, or termination, of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.”

6.6.2 Proposed Ponds

The recommended pond sites were chosen based on numerous factors: ground water table height, soil permeability, profile grade, pre-development outfall locations, minimizing wetland impacts, avoiding floodplains, parcel owners, minimizing distance to pipe runoff to each pond, and avoidance of threatened and endangered species and cultural resources. The off-site pond locations were also determined based on allowable hydraulics and head loss (how far stormwater could be piped). There are eight proposed drainage basins along Alternative 2: 1, 2, 3, 4, 5, 6, 9 and 10. **Table 6-4** lists the recommended ponds per proposed basin and ponds are also shown on **Figure 13**.

Table 6-4 Proposed Pond Locations

Basin	Recommended Ponds	Type of Pond	Storage Volume (ac-ft)	Parcel Owner
1	1-3	Dry	8.12	Santa Rosa County
	1-5	Wet	6.71	Santa Rosa County
2	3-3	Wet	9.58	Henry Elliot, Jr
3				
4	4-4	Wet	5.24	Cassie Findley
5	5-1	Dry	10.69	James Peterson
6	6-1	Dry	16.26	William Rollo
9	9-3	Dry	24.67	Maray Enterprises, LLC
10	10-2	Dry	11.90	Skivans Creek LLC

6.6.3 Required Permits

1. FDEP ERP Permit (For Wetlands and Stormwater Treatment)
2. FDEP SSL Authorization (Public Easement)
3. USACOE CWA Section 404 Dredge and Fill Permit
4. National Pollution Discharge Elimination System (NPDES) Permit

6.7 Traffic Analysis

6.7.1 Design Traffic Volume

The future daily traffic volumes (AADT) for the two Build corridors and the No Build condition were obtained from NWFRPM models for Opening, Interim and Design years. In order to be consistent with the recently adopted TPO concurrency management program, AADTs were converted to peak hour directional volumes using the same K and D factors used in the FDOT's 2009 Generalized LOS Tables. This procedure was also recommended by FDOT's Central Office because the LOS Tables based on the Standard K Factors are not yet available.

The results of the roadway capacity analysis indicated that Alternative 2 will divert traffic from US 90 and reduce the number of failing segments along US 90 to one segment in 2015 (from SR 281 to Glover Lane), three segments in 2025 (from SR 281 to Glover Lane, from SR 87N to Canal Street and from Broad St to Dale Street) and two segments in 2035 (from SR 87N to Canal Street and from Broad St to Dale Street). All other road segments will operate at acceptable LOS. The expected volumes along the SR 87 Connector are summarized in **Table 6-5**. It should be noted that while these volumes will provide some relief to traffic congestion along US 90, they are well within (and less than half) the daily capacity of a four lane divided roadway with few signalized intersections.

**Table 6-5 Future AADT along SR 87 Connector**

Segment	2015		2025		2035	
	Volume	LOS	Volume	LOS	Volume	LOS
US 90/SR 10 to CR 191/Munson Hwy	10,731	B	15,015	B	19,746	B
CR 191/Munson Hwy to SR 87N	8,922	B	12,834	B	17,121	B

6.7.2 Intersection Analysis

Intersection analysis using SYNCHRO7 was performed for 13 intersections. The analysis indicates that for Alternative 2 both the intersections of SR 87N and SR 89 at Oriole Street; and SR 87 Connector and Munson Highway would be failing (LOS F) in years 2025 and 2035 if they were to remain un-signalized. Both intersections are expected to perform at LOS B in 2035 if signalized. The SR 87 Connector intersections with US 90, and SR 87N will operate at LOS C or better by 2025 and LOS D or better by 2035 for both AM and PM peak hours. All other intersections are expected to perform at acceptable LOS.

6.8 Structures

Clear Creek Bridge

Based on the outcomes of the hydraulic investigations and for planning purposed, it is recommended to construct twin two-lane bridges for the use of vehicle traffic with the possibility of a future multi-use trail over Clear Creek on the bridge. Based on the Technical Memorandum, the new bridges are recommended to span approximately 180 feet. A minimum low member elevation of 18.95 feet is recommended to ensure that the bridge is elevated sufficiently to allow for debris clearance in the design 50 year ARI flood, and to ensure stages do not increase more than 1 foot upstream of the proposed bridge. As mentioned previously, the southbound bridge will feature an extra-wide shoulder, capable of being converted into a 12 foot multi-use trail separated from traffic lanes with the use of an F-shaped traffic barrier.

Each of the bridge structures will feature two 90 foot spans measured at the centerline of construction. Each bridge span will feature simply supported 45 inch Florida-I Beams with an 8.5 inch composite cast-in-place deck, and a 0.5 inch sacrificial wearing surface. Each span will consist of five (5) beams spaced at 11 feet-9 inches for the southbound bridge, and four (4) beams spaced at 11 feet-6 inches for the northbound bridge. The width provided for the southbound and northbound bridges will be 56 feet-0.5 inches and 43 feet-1 inch respectively. The bridge bents will be founded on a single line of 24 inch prestressed concrete piles supported by nine (9) piles and eight (8) piles for the southbound and northbound bridges respectively. The bridge end bents will be comprised of a cast-in-place cap supported on a single line of six 24 square inch prestressed piles and five 24 inch prestressed piles for the southbound and northbound bridges respectively.

RECOMMENDED ALTERNATIVE

A geotechnical investigation, which determined that shallow foundations were not feasible for this project due to the relatively loose nature of the surface soils and the potential for scour instability. As a result, only deep foundations were considered, including drilled shafts and driven piles. Since the limestone bearing stratum wasn't encountered within 100 feet or less of the existing ground surface, and the axial and lateral loads weren't expected to be high enough to justify the extra costs typically associated with the use of drilled shafts. Because of these findings, and through an axial capacity analysis of various driven piles, it is recommended that square concrete piles be used for all bridges within the project limits. **Figure 18** shows a typical section of the Clear Creek Bridge, along with the proposed super and sub structural component configuration previously mentioned.

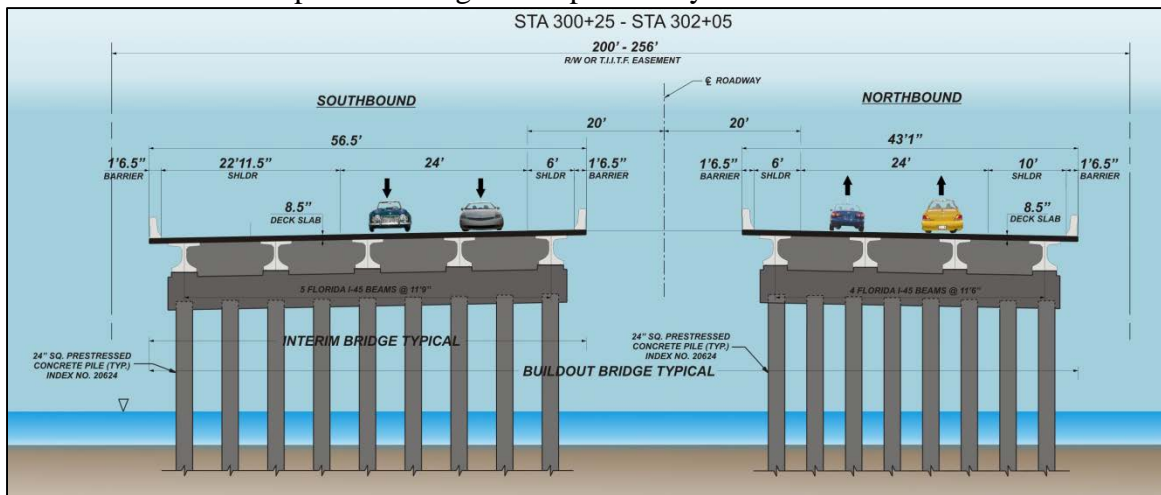


Figure 18: Clear Creek Bridge Typical Section

Blackwater River Bridge

It is recommended that the proposed bridge to span Blackwater River be 5,571 feet long. The bridge should have a minimum low member elevation of 21 feet NAVD over the river and floodplain, and a minimum low member elevation of 27.70 feet NAVD over the Blackwater Heritage State Trail. Similarly to the proposed Clear Creek Bridge, these low chord elevations and span lengths make allowance for 2 feet debris clearance, as well as ensuring upstream stage increases are less than 1 foot. In addition, the length of the bridge will also allow for the spanning of Pat Brown Road, and the Blackwater Heritage State Trail.

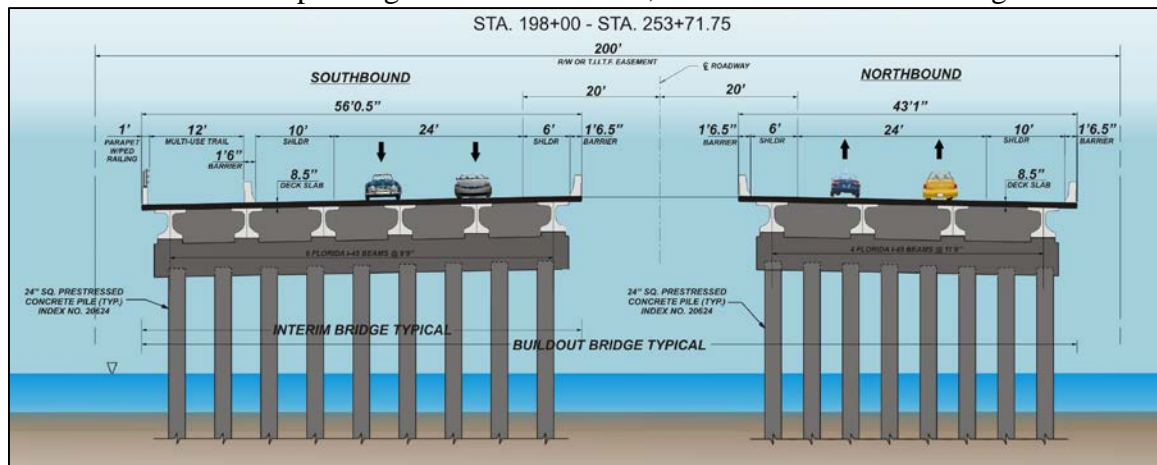


Figure 19: Blackwater River Bridge Typical Section

6.9 Construction Cost Estimate

An approximate description by segments of the project 2012 Long Range Estimate (LRE) for the recommended alternative has been tabulated in **Table 6-6**. Details of the LRE can be found in Appendix H.

The 2012 Long Range Estimate includes the cost of all materials, labor, equipment, tools, and related work required in connection with the construction of the project. Preliminary construction cost estimates are based on 2012 unit prices. Miscellaneous costs such as MOT and mobilization have been included in the construction cost based on 10% of the preliminary construction cost respectively while contingencies have been computed as a lump sum of \$150,000. This results in relatively high MOT and mobilization costs, which are likely to be lesser than 10% due to the majority of construction occurring in areas with no existing traffic. The contingency estimate is a low estimate, but overall the high MOT and mobilization costs balance the overall estimate. It should be noted that utility impacts and adjustments are not included in this cost estimate.

Table 6-6 Cost Summary For Alternative 2

Components	Construction Cost
From STA 100+00 to STA 253+71.75 and From STA 483+25.00 to STA 505+95.00	
Earthwork	\$1,010,235
Roadway (shoulders, median, lighting, signing)	\$7,714,601
Drainage	\$3,895,114
Structures	\$69,827,644
URBAN TYPICAL SECTION SUBTOTAL	\$82,447,594
From STA 253+71.75 to STA 483+25.00	
Earthwork	\$3,198,766
Roadway (shoulders, median, lighting, signing)	\$7,810,907
Drainage	\$3,568,169
Structures	\$2,362,740
RURAL TYPICAL SECTION SUBTOTAL	\$16,940,582
PROJECT SUBTOTAL	\$99,388,176
MOT (10%)	\$9,938,818
Mobilization (10%)	\$10,932,700
Contingencies	\$150,000
SUBTOTAL PROJECT COSTS	\$120,409,700
Design (5%)	\$6,020,485
CEI (3%)	\$3,612,291
TOTAL PROJECT COSTS	\$130,042,476

6.10 Relocation Plan

Based on available information, 38 parcels were identified within the project area that will be directly impacted by Alternative 2.

At the intersection with Winston Brown Road, Alternative 2 will result in direct impacts to three residential parcels. Two of these parcels will require relocation due to the presence of mobile homes (7524 Eagle's Way and 7530 Eagle's Way). Other direct impacts at these locations include access impacts and impacts to minor structures (ex: sheds). In addition, during design if variances and coordination with Gulf Power cannot prevent impacts to a

RECOMMENDED ALTERNATIVE

home along Munson Highway, a third residence may be displaced in both alternatives. No business relocations are anticipated.

The FDOT will carry out a right-of-way and relocation program in accordance with F.S. 339-09 and the Uniform Relocation and Real Property Acquisition Act of 1970 (Public Law 91-646 as amended by Public Law 100-17).

6.11 Right-of-Way Cost Estimate

The right-of-way cost includes the expenditures associated with right-of-way acquisition such as land costs, severance damages, court awards and settlements, etc. Alternative 2 results in approximately a total of 191 acres of right-of-way acquisition for a total of ±\$5,626,000 in right-of-way costs for the proposed roadway and proposed ponds, relocation costs and business damages. As was previously mentioned, it is the intent for the project to initially build an interim two lane facility and as demand increases, the road would be expanded to four lanes to ultimately match the four lane section at the existing SR 87S and SR 87N. It should be noted however that sufficient R/W will be acquired in the first phase of the project for the future four-laning. Details of the R/W cost estimate are included in **Appendix I**.

6.12 Value Engineering

A Value Engineering Study was conducted by the Florida Department of Transportation, District 3 during the week of January 14 - 17, 2013 (see **Appendix K**). The purpose of the Value Engineering process is to offer recommendations that would result in minimizing the project cost without an appreciable reduction in benefits. **Table 6-7** summarizes the VE Study Team preliminary options and the potential cost savings associated with them.

Table 6-7 Summary of Preliminary VE Study Ideas

VE Option #	Description	Approximate Potential Cost Savings
VE-1	Terminate the Multi-Use path at the Blackwater Heritage Trail (Station 257+00) and construct a 5 foot sidewalk for the remainder of the project.	\$590,300
VE-2	Terminate the Multi-Use path at the Blackwater Heritage Trail (Station 257+00)	\$1,125,200
VE-3	Reduce the width of the Multi-Use Path from 12 feet to 10 feet for the entire length of the project.	\$2,083,900
VE-4	Reduce the width of the Multi-Use path from 12 feet to 10 feet from the beginning of the project up to station 257+00. Construct 5 foot sidewalk in-lieu of the Multi-Use path for the remainder of the project.	\$2,432,800
VE-5	Reduce the width of the Multi-Use path from 12 feet tot 10 feet from the beginning of the project up to Station 257+00. Terminate the Multi-Use path at the Blackwater Heritage Trail (Station 257+00)	\$2,967,700
VE-6	Eliminate the five foot sidewalk on the east side of the roadway for the entire length of the project.	\$6,085,800

RECOMMENDED ALTERNATIVE

Table 6-7 Summary of Preliminary VE Study Ideas

VE Option #	Description	Approximate Potential Cost Savings
VE-7	Combine VE-4, and VE-6.	\$8,518,600
VE-8	Build both Blackwater and Clear Creek bridges on the eastern alignment (NB lanes) with a five foot sidewalk and one foot railing. However, the five foot sidewalk will not be built for the rest of the project until a future date when the area is developed and sidewalk is needed.	\$706,400
VE-9	Use a rural typical section and open drainage system from Station 253+60 to Station 441+89.50 in lieu of the suburban typical and closed drainage system.	\$7,448,600

After a careful analysis of each preliminary option, a Value Engineering meeting was held on January 30, 2013 with District 3 Management. From this meeting, it was recommended that VE options VE-2, VE-6 and VE-9 be proposed for implementation with some revisions. Implementation of the revised VE options provide a savings of approximately \$13,487,900. The proposed options along with the recommended revisions are described and illustrated in **Table 6-8**.

Table 6-8 Recommended VE Study Options

VE Option #	Revised Description	Revised Potential Cost Savings
VE-2	The twelve foot multi-use path will connect the old SR 1 brick road to the Blackwater Heritage State Trail and will terminate at station 257+00. There will be no multi-use trail from station 257+00 for the remainder of the project. However, management requested a change to VE Idea 2 as proposed to include the additional width necessary to construct a twelve foot multi-use path on the Clear Creek Bridge. Management also requested the barrier wall to be placed at the outer edge of the bridge. The bridge can be retrofitted with another barrier to separate the multi-use path for the shoulder at a future date in the event the multi-use path is constructed. Changes requested by management reduced the savings for VE Idea 2 from \$1,125,208 to \$759,710 for a net difference of \$365,498.	\$759,700
VE-6	VE Idea 6 eliminates the five foot sidewalk on the east side of the future north bound roadway. Changes requested by management reduced the savings for VE Idea 6 from \$6,085,771 to \$5,279,604 for a net difference of \$806,167. The reduced savings is due to VE Idea 9 already including the savings for removal of the five foot sidewalk for the rural section which is 3.556 miles in length.	\$5,279,600
VE-9	Use a rural typical section and open drainage system from Station 253+60 to Station 441+89.50 in lieu of the suburban typical and closed drainage system.	\$7,448,600

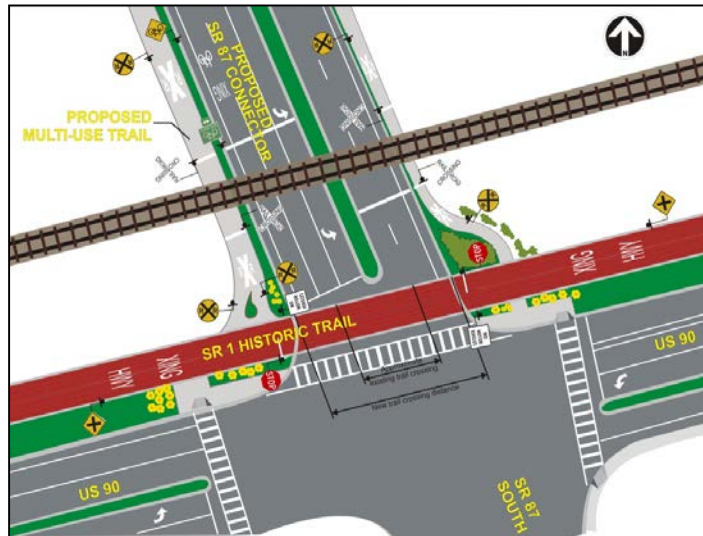
In addition to the recommended VE recommendations, it is also recommended that a full median opening at the new intersection of Bobby Brown Road and SR 87N be implemented as part of the design. **All of the recommended VE study options were implemented into this project.**

6.13 Context Sensitive Solutions

Context Sensitive Solutions (CSS) is a proactive, collaborative and interdisciplinary approach to transportation decision making, project development, and implementations, taking into account the views of stakeholders and the local area where a project will exist, be operated, and be maintained. CSS considers the physical setting in which a project or activity is to be implemented, and seeks to enhance and conserve community defining features and environmental resources. This approach seeks to balance safety and mobility with local priorities.

As part of the CSS collaboration within our study area, most of the alternatives that have undergone the selection process, from the initial conceptual design analysis to the final alternative evaluation, have included CSS components such as pedestrian, bicycle, and environmental considerations.

Aesthetic improvements include landscape enhancements at the intersection of the SR 87 Connector and Historic SR 1 State Trail (see right).



6.13.1 Pedestrians and Bicycle Facilities

Pedestrian and bicycle facilities along the SR 87 Connector are important components of the area's transportation system. A 12 foot multi-use path is proposed from US 90 until the proposed bridge over the Blackwater Heritage Trail. The proposed bridge over the Blackwater Heritage Trail will also provide access ramps in both the north and southbound directions to connect to the trail.



6.13.2 Effective Public Involvement

Several project kick-off meetings were held with the City of Milton, the FL-AL Transportation Planning Organization (TPO) and the Santa Rosa County Commissioners. A public kick-off meeting was also held on March 23, 2010 with 156 attendees.



RECOMMENDED ALTERNATIVE

The team also held additional meetings with several agencies including the Florida Department of Environmental Protection (FDEP), Northwest Florida Water Management District (NFWFMD), Santa Rosa County, FL Department of State Lands (DSL), Federal Highway Administration (FHWA), and Department of Forestry (DOF).

A Public Corridor Alternatives Meeting was held on January 27, 2011 and 149 people attended the meeting. An Alternatives Public Workshop was also held on August 16, 2011 and 86 people attended the meeting. A total of 10 comments were received at the Public Corridor Alternatives Meeting and 25 comments were received at the Alternatives Public Workshop. A summary of the Public Involvement is included in Appendix J.

6.13.3 Environmental Considerations

Environmental impacts were avoided to the fullest extent possible. The project proposes a bridge crossing over the Blackwater River and its entire floodway which includes bridging over the existing critical habitat for the reticulated flatwoods salamander and the Blackwater Heritage State Trail (BHST). A bridge will also be provided over Clear Creek and culverts will be used to connect impacted wetlands where necessary. Pilings will be placed to limit direct impacts to threatened and endangered species.

In an effort to minimize direct impacts to the salamander critical habitat unit and secondary impacts to the breeding ponds, the entire critical habitat unit will be bridged and the alignment was shifted south of the original proposed location to avoid impacts to the breeding ponds within the critical habitat unit. This bridge will be a continuation of the bridge over the Blackwater River so the same stormwater treatment conveyance system will be used to collect stormwater treatment from entering the critical habitat unit.

The proposed project alignment over the BHST will include the construction of a grade-separated overpass that will traverse the 100-foot wide trail corridor. No bridge pilings or other bridge infrastructure will be installed within the trail corridor. The construction of the crossing will not impact access to, or usage of the trail, neither will the project impact the vital functions of the trail.

6.14 Environmental Impacts

6.14.1 Historical and Archaeological Resources

As previously stated on Section 3 of this report, no archaeological resources were found within the project study area. The potential for a sunken vessel located near the proposed SR 87 Blackwater River Bridge was noted, however the survey and evaluation of this potential historic resource may best be addressed at a later date when a bridge design and exact location have been determined.

6.14.2 Wetlands

Alternative 2 directly impacts approximately 30 acres of wetlands and an additional 22 acres+ are potentially subject to shading. There will be approximately 135 acres of indirect and cumulative wetland impacts*. Wetland impacts have been avoided and minimized to the maximum extent practicable by bridging the high quality sensitive wetlands associated with the Blackwater River Clear Creek, and reticulated flatwoods salamander critical habitat.

*Based on the preliminary Uniform Mitigation Assessment Methodology (UMAM) evaluation, this alternative will result in 50.60 units of functional loss.

6.14.3 Biological Impacts

As previously stated, the SR 87 Connector project may potentially have direct effects on the critical habitat of both the Gulf Sturgeon and the Reticulated Flatwoods Salamander (RFS). Direct effects to the critical habitat units are associated with bridge construction. Bridge construction may result in direct habitat impacts resulting from piling installation including sediment disturbance and turbidity, noise and vibration, and movement of construction equipment.

In terms of secondary effects, the fact that the Gulf sturgeon and RFS, critical habitat units will be bridged, will minimize potential indirect impacts. Although secondary and indirect effects may result from normal bridge operation and maintenance procedures, they can also be minimized using best management practices. Additional specific information regarding the project's Biological Assessment is contained in the Biological Assessment Report available for review at the District 3 Environmental Management Office.

6.14.4 Contamination

In accordance with the PD&E Manual, Part 2, Chapter 22, the FDOT has identified and evaluated the proposed right-of-way for potentially contaminated sites for the recommended alternative. A site assessment will be performed to the degree necessary to determine the levels of contamination and, if necessary, evaluate the options to remediate along with the associated costs. Resolution of problems associated with contamination will be coordinated with the appropriate regulatory agencies and, prior to completing the right-of-way acquisition process, appropriate action will be taken. A Contamination Screening Evaluation Report (CSER) for this project has been prepared and is available for review at the FDOT District 3 office. The CSER did not identify any High risk sites, but listed nine (9) contamination sites rated as Medium risk and three (3) rated as Low risk.

More detailed information of these Medium risk sites as well as descriptions of Low risk sites are contained in the project's CSER.

6.14.5 Noise

A noise impact assessment was prepared for the project in accordance with federal regulations (CFR 772) and guidelines contained in Chapter 17 of the Florida Department of Transportation PD&E Manual. This document is available for review at the District 3 Environmental Management Office.

Eighty-seven (87) potential noise sensitive sites were identified along Alternative 2 and were grouped into noise sensitive areas (NSA) based on their geographic location. Of these six (6) sites are predicted to experience traffic noise levels equal to or exceeding the Noise Abatement Criteria (NAC). Based on predicted noise levels exceeding the NAC, noise barrier evaluations were performed as potential abatement for noises sensitive sites. The results of the barrier evaluation indicate, however that the construction of noises barriers does not appear to be cost reasonable based on their inability to provide the minimum required reduction in traffic noise at a cost below the FDOT's guidelines.

Regarding construction noise impacts, there are no known County or local ordinances that set specific limitations on construction noise levels applicable to FDOT projects. The potential exists for noise and vibration impacts from equipment during the construction phase of this proposed project. To mitigate those impacts, the contractor will be required to adhere to the latest edition of FDOT Standard Specifications for Road and Bridge Construction. Specifications include noise screening guidelines for stationary equipment, exhaust noise, noise from loose equipment parts, and excessive tailgate banging.

6.14.6 Air Quality

An Air Quality Technical Memo was prepared for this project and is available from the FDOT District 3 Office. The project is located in an area currently designated as being in attainment for all of the National Ambient Air Quality Standards (NAAQS) under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project.

The project alternatives were subjected to a carbon monoxide (CO) screening model that makes various conservative worst case assumptions related to site conditions, meteorology and traffic. Based on the results from the screening model, the highest project-related CO levels are not predicted to exceed the NAAQS.

Construction activities will cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. The impacts will be minimized by adherence to all applicable state and local regulations and to the FDOT Standard Specification for Road and Bridge Construction.

6.14.7 Land Use

The land use impacts associated with the project generally entail land use changes from existing residential and agricultural to transportation use. Although some of the

RECOMMENDED ALTERNATIVE

affected parcels are residential (e.g., multi-family, medium-low density and medium-high density) most of them are commercial land uses.

6.14.8 Recreation and Parkland

Although there are no parks adjacent to the proposed facility, alternative 2 will have a direct impact to the Blackwater Heritage State Trail (BHST), a recreational facility which is part of the Florida System of Greenways. To minimize any impact, alternative 2 will include the construction of a grade separated overpass that will traverse the 100 feet wide trail corridor right-of-way. No bridge pilings or other bridge infrastructure will be installed within the trail corridor. There will, however be a link provided to the BHST enabling access and connectivity to approximately 7 miles of new trail associated with the proposed improvements. Additional information regarding this issue is included in the Final Environmental Impact Statement (FEIS) available for review at the District 3 Environmental Management Office.

6.14.9 Coastal Zone Consistency

The Department of Environmental Protection, State Clearinghouse, has determined that this project as documented in the Advanced Notification (AN) is consistent with the Florida Coastal Zone Management Plan.

6.14.10 Water Quality

This project allows for comingling of offsite runoff with the proposed roadway runoff, as allowed by House Bill 599. In areas requiring wetland connectivity under the proposed roadway, the offsite runoff will bypass under the proposed improvements and continue to discharge to existing discharge points. This will allow for normal hydrological flow within wetland areas and improve water quality. In areas with an urban section, the roadway runoff will be collected in a closed storm drain system and ultimately treated in stormwater detention ponds (wet and dry detention). The rural section of roadway will have open roadside ditches to convey runoff to stormwater management facilities.